

ALBERTA COMPOSITE HIGH SCHOOLS  
AND  
GIFTED YOUTH



By  
Ian Edward Housego

1958

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ALBERTA COMPOSITE HIGH SCHOOLS  
AND GIFTED YOUTH

A DISSERTATION  
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE  
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DIVISION OF EDUCATIONAL ADMINISTRATION

by

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"Boredom is nothing but the experience of a  
paralysis of our productive powers and the  
sense of un-aliveness"

Erich Fromm

-- The Sane Society --

---"the presentation of each problem is a  
challenge to undergo an ordeal"

Arnold Toynbee

-- A Study of History --



## ABSTRACT

Good secondary school programmes for gifted students are characterized by a set of practices or criteria supported by experience and research in education. This study was an attempt to formulate a set of criteria based on the literature dealing with the education of gifted youth and to evaluate the general trends in the large comprehensive high schools in Alberta (called composite high schools) in terms of the so-called ideal criteria.

The following criteria can be supported as practices characterizing good programmes for the education of gifted youth: (1) discovery of students with potential possibilities for high achievement in a number of socially useful endeavours; (2) individual attention to gifted students in regular classrooms (heterogeneous ability groupings), special classes for gifted students, and/or acceleration of gifted students throughout their high school career; (3) motivation of the gifted through special guidance, through a variety of monetary and non-monetary rewards for worthy effort and high achievement, through provision of a number of try-out opportunities in which the gifted may develop their interests, and through contacts with individuals in the school and community in positions to motivate the gifted; (4) enrichment of the in-class and out-of-class experiences of the gifted by a quality of educational experiences designed to challenge them and assist them in the continuing birth of their potential capabilities in academic and non-academic fields; (5) use of community resources available to the high schools in promoting the best development of the gifted; (6) supervision of the teachers of the gifted as such.

In order to evaluate current composite school practices in terms of





the above criteria, the investigator visited each of the eight Alberta composite high schools. More than 100 gifted students were interviewed; the records of the students were examined for pertinent information; the administrative officials in the high schools were interviewed; more than 75 teachers of the selected students responded to questionnaires dealing specifically with what they did for their gifted students.

The findings of the study suggest that Alberta composite high schools, while characterized by some degree of concern for the realization of the best development of gifted students, are not characterized by planned programmes, the aims of which are understood and wholeheartedly supported by teachers and administrators alike. School files contain information pointing out the intellectually gifted but their teachers, on the whole, do not know even half of them; the teachers of the gifted say they are unable to do all that they want to do for their gifted students because classes are too large and too heterogeneous from the viewpoint of interests and abilities; a number of the selected students neither win awards during their high school career, nor do they participate in any extracurricular activities or community organizations. Rather remarkably, however, 8 out of 10 of the selected students are actively planning to go on for further education; many of the teachers of the gifted make no attempt to enrich the educational experiences of their gifted students, and of those that do, very few make extensive efforts to provide enriching experiences over and above what they provide for the general run of students in their classes; generally speaking, the schools make limited use of community resources to benefit gifted students as such; the supervisory leadership provided for the teachers of the gifted by school administrators is very limited.



## ACKNOWLEDGEMENTS

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## CHAPTER I

### INTRODUCTION

#### 1. The Problem

This study has attempted to evaluate the nature and extent of current educational practices involving a selected group of gifted grade twelve students in Alberta's eight composite high schools.

#### 2. The Research Background

This study is a part of the Composite High School Project undertaken at the University of Alberta by a group of Kellogg Fellows in the Division of School Administration (Faculty of Education). The group has been under the direction of Professor J. H. M. Andrews.

Since 1953, the writer has had a growing interest in the education of gifted children and youth. He has become increasingly aware through reading, observation and discussion, of the need for Canadian authorities to survey and evaluate current practices in elementary and secondary schools that involve so-called gifted students.

The thesis requirements at the University of Alberta have presented this writer with the opportunity to carry out such an investigation.

#### 3. Definition of Terms

The statement of the problem contains three concepts which need to be defined:

##### (1) Gifted youth

For the purposes of this study the subjects considered gifted are those whose names appear in the 97th, 98th and 99th percentiles



on the Dominion Intelligence Test administered to them when they were in grade nine by the Department of Education. The information is available in the Examinations Branch of the Alberta Department of Education.

## (2) Composite High school

Any high school in Alberta offering three arbitrarily determined subject patterns as choices open to students in grades ten, eleven and twelve shall be considered a composite high school. Students may choose to graduate from high school in the matriculation pattern, the general pattern, the commercial pattern or the technical pattern.

## (3) Educational practices

In the writer's attempt to develop the criteria of an adequate secondary school program for gifted students, the following categories have been considered important: the means of identifying the gifted; the means of motivating the gifted to obtain their potential promise; the nature and degree of curriculum enrichment for the gifted; the means used by administrators in the composite high schools to organize the program so that qualified teachers can offer a challenging course of studies; the use made by the schools of community resources as means of meeting the needs of gifted students; the supervision and evaluation of teachers of the gifted.

Briefly, the writer has attempted to discover to what degree the composite high schools are meeting the needs of their gifted students and encouraging their best development.

## 4. Collection of Data

If the education of gifted students in the composite high schools of Alberta were to be evaluated, then some sort of yardstick had to be developed against which it would be possible to measure current practices. The writer's





concern was centered around the development of an acceptable and adequate secondary school program for the education of gifted students. In terms of such a program the writer planned to formulate devices for gathering data.

Once the 'yardstick' was designed it became possible to decide the means by which data would be gathered. The means, as finally agreed upon, were: the structured interview technique; the questionnaire; examination of pertinent records.

(1) Information from the records (See Appendix A)

An information sheet was made up which enabled the investigator to record quickly pertinent information on each of the selected students involved in the study. The information came from permanent record cards in each of the schools and had to do with the course pattern in which each student is enrolled, the number of credits earned in each grade by the student and the courses taken by the student in each grade.

(2) Information by means of structured interviews (See Appendix A)

Interview sheets were formulated to elicit information from the school principals, guidance co-ordinators, and the selected students.

(a) Information from the principal

Each of the composite high school principals was interviewed by the investigator. The questions asked had to do with the following:

1. The means by which the school identified gifted students
2. Special courses in the school program available only to gifted students.
3. A statement of the school's policy concerning the education of gifted youth.
4. The extracurricular activities organized in the school.
5. The nature of any special assistance given by the administration to those who teach the gifted.





6. The monetary and non-monetary awards available at the school for worthy students.
7. The principal's knowledge of the nature and degree of curriculum enrichment being carried on in the school.
8. The administrative devices used by the authorities in the education of the gifted.
9. The nature and extent of in-service training carried on in the school which relates to the education of the gifted.
10. The supervisory personnel available for assisting the teachers of the gifted, and the nature of the assistance they render.
11. The evaluation of the effectiveness of teachers of the gifted.
12. The use made by the school of community resources in meeting the needs of gifted students enrolled at the school.

(b) Information from the guidance co-ordinator

At least one guidance official in each school was interviewed by the investigator. The questions asked related to the following:

1. The measuring devices used by the guidance department.
2. The schedule of testing and measurements.
3. The availability of guidance records.
4. The degree of special guidance available to the gifted.
5. The nature of any studies of the gifted undertaken by the guidance department.
6. The nature of routine guidance interviews.

(c) Information from the selected students

The selected students in each school were interviewed as a group. Each student received the question sheets and, following a brief introduction and explanation of the nature of the research and the value of their contributions, the students were invited to answer the questions. They were urged to answer honestly and fully, and were requested to ask the investigator to clarify any questions which they were unable to understand.



The questions related to the following:

1. The student's association with the guidance department.
2. Subject likes and dislikes.
3. Time spent on school studies outside of school hours.
4. Participation in extracurricular activities and awards.
5. The qualities they most desire in their teachers.
6. The degree to which they use the school's library facilities.
7. The student's opinions concerning the adequacy of the library.
8. Involvement in individual and 'small group' projects.
9. Liking for school.
10. The student's opinion concerning whether or not the school restricts his interests.
11. The student's opinion on whether or not the school is overworking him and underworking him.
12. Involvement in community organizations.
13. Leadership in the community.
14. The extent to which the school has helped the student to make use of community resources in satisfying his interests.

### (3) Information by means of questionnaires (See appendix A)

Two devices were developed for gathering data from the teachers of the gifted. The first attempted to get information from the teachers which would enable the investigator to draw conclusions on the important matter of whether or not the teachers know who their gifted students are.

The second device was the major questionnaire. It was given to each of the teachers of the selected group of grade twelve students. It contained eighteen questions having to do with the following:

1. The teacher's use of guidance facilities as an aid in teaching and understanding his gifted students.
2. The teacher's opinion concerning the adequacy of the guidance facilities.
3. The teacher's conception of the ideal way for a school to educate its gifted.
4. Obstacles which prevent the teacher from doing all that he might wish to do for his gifted class members.



5. The degree to which the teacher reads professional literature dealing with the education of gifted youth
6. The nature and extent of curriculum enrichment practiced by the teacher.
7. The teacher's opinion concerning the adequacy of the library and laboratory facilities and amount of extra-curricular activities.
8. The teacher's participation in curriculum revision.
9. The degree of involvement in in-service training which relates to the education of gifted youth.
10. The extent of evaluation by the administration of the teacher's effectiveness as a teacher of the gifted.

#### (4) The actual gathering of the data

By the end of April, the writer had formulated and printed the data-gathering devices; he had spent time in the Examinations Branch of the Department of Education getting the names of the subjects of the study. Between May 4th and 22nd he had visited the following composite high schools in Alberta: Lethbridge, Medicine Hat, Crescent Heights and Western Canada (Calgary), Lindsay Thurber (Red Deer), and Victoria, Strathcona and Eastglen (Edmonton). While at each school, the writer interviewed the principal, guidance official and the selected students, and he gathered the necessary information from the permanent record cards. The questionnaire developed to gather data concerning the teachers' knowledge of who their gifted are was administered before the teachers had a chance to learn who the selected students were. The other questionnaire was left with the principal of each school, to be given out by him and after a reasonable length of time (one week) collected by him and forwarded to the writer in Edmonton.

### 5. Limitations and Strengths of the Study

#### (1) Limitations

Perhaps the major weakness is to be found in the means by which the data was gathered. Pertinent information was found in permanent records in the composite high schools and the Provincial Department of Education. In addition, pertinent information was needed from the school principals, guidance officials,





the selected students, and their teachers. The information these people possessed was available only through the use of questionnaire and interview techniques. The investigator was faced with the problem of eliciting opinions, attitudes, expectations, memories, and motives.

Principals, guidance coordinators, and the selected students were interviewed. It was hoped this means of data-gathering would result in more cooperation from the subjects than would have been achieved through the use of questionnaires. This approach also made it possible for the investigator to explain questions whenever subjects could not understand them.

Admittedly the results from the interviews were difficult to analyze and to some extent the investigator's bias may have been introduced in the analysis of responses. There was an attempt made to overcome the operation of bias in the interpretation of answers by setting up as many categories as were needed to include all answers given, ...without having to force replies into categories.

In many instances the responses did not lend themselves readily to statistical analysis. This was because the investigator attempted to be as non-directive as possible in influencing the remarks and responses of the subjects.

The investigator did not carry out a pilot run to determine the objectivity and clarity of questions as well as their reliability and validity. This very important weakness was overcome to some degree insofar as the investigator was available in the interview situation to clarify any doubts of the subjects concerning the meanings of questions. In the few questions that needed clarification from school to school, the investigator was careful to give a consistent response.





In the development of the teachers' questionnaires the investigator found it very difficult to formulate questions that would result in easily tabulated answers and still leave teachers free to express their opinions, attitudes, and memories concerning that which they were doing in the education of their gifted students.

An attempt was made to formulate specific questions that would avoid the possibility of vague answers. There was an attempt made to develop clear questions so that the questioner's intent would be easily understood. There was an attempt made to have questions that were easily answerable in terms of the subjects' experience.

The investigator realizes that he presented teachers with a lengthy questionnaire which may have strained the good will of some of the respondents. To make it as easy to answer as possible only approximate answers were required; no questions were asked the answers to which were to be found in school records; the respondents were not required to identify themselves; terms open to a variety of interpretations were defined; as often as possible the investigator listed allowable answers and the teachers were able to vote, and there was a space left for 'others' so as not to restrict the answers of teachers; the questionnaire's purpose was outlined in a letter to the teachers and their cooperation was solicited in terms of the contribution they would be making to education in Alberta composite high schools.

The objectivity, clarity, reliability, and validity of the device were adversely affected in that there was no preliminary try out or pilot run. The following considerations may also have had an adverse affect on the above: the data was of an 'attitude' nature in many respects; it tended to be subjective and personal in many respects. On the other hand, the investigator got inform-



ation and opinions from the persons in the best position to give the results of their first-hand experience in the education of gifted students in Alberta composite high schools.

Another important limitation is perhaps pointed up by the question, "Were the selected students in fact gifted students?" The subjects were selected in terms of their high rating on a group intelligence test given to them when they were in Grade IX. Their names appeared in the upper three percentiles on the Dominion IQ test. The results of this test were the only ones available which were given generally to Grade IX students. This was the only available data which would give the investigator the information needed without undertaking an intelligence testing programme of Grade XII students.

While there are authorities who refuse to accept high IQ rating (especially from a group intelligence test) as an indication of giftedness, the investigator found support for the contention that an IQ test is the single most reliable means of selecting students with high intellectual ability.

In addition, there are those who define giftedness to include much more than high intellectual endowment. To get around this difficulty the investigator defined giftedness 'for the purposes of the study' as high general intelligence. It was assumed that there exists a positive correlation between high mental ability and achievement in the academic areas and also the non-academic areas such as the fine arts, and social leadership.

## (2) Strengths of the Study

One of the major strengths of the study is that in getting information concerning the education of gifted students in Alberta composite high schools, the investigator dealt with those parties most directly connected with the problem and those who, therefore, were in a position to give first-hand



information.

Table I shows that the investigator worked with approximately 70 per cent of the probable number of gifted Grade XII students.

The investigator had the names of 127 teachers of the selected students. The questionnaire return from this group was 78, or about 61 per cent. The teachers represented the following subjects: English, social studies, science, chemistry, biology, physics, algebra, trigonometry, English Literature and Language, psychology, art, drama, and the Grade XII commercial subjects.

The investigator completely sampled the composite high school principals and guidance officials.

A second strength of the study lies in the fact that, before the investigator determined the so-called criteria of a good secondary school programme for gifted students, he constructed a conceptual framework on the basis of a survey of related literature. The investigator believed that in order to evaluate current composite high school practices involving gifted students it was necessary to provide something against which the practices could be judged. Therefore, approximately one half the study was given over to the development of a frame of reference within which the investigator could proceed to evaluate current secondary school policies involving gifted students.

The survey was made at a time when interest in the education of superior students was running relatively high across Canada. A national conference on education, the "Sputnik" challenge of Russian education, articles in secular magazines, and an increasing awareness on the part of university officials and teachers in general of the importance of revising the mathematics-science curriculums in secondary schools in order to teach up-to-date concepts, all these led the writer to believe that administrators, teachers and students





would be more willing to take part in the survey than might otherwise have been the case without widespread interest in gifted students.

The writer hopes that as a result of the survey administrators and teachers alike will have, at least to some degree, an increased awareness of the importance of the problem of providing gifted students with the kind of education calculated to meet their needs.

Now that the field is open, the writer hopes further studies will be made concerning the education of gifted students in Alberta composite high schools.





TABLE I

## A SUMMARY OF THE SAMPLE OF SELECTED STUDENTS FOUND IN ALBERTA COMPOSITE

## HIGH SCHOOLS IN GRADE XII 1957-1958

School	Actual Number of Selected Students	Students With IQ Rating in Record Cards	Per Cent of Students With Records	Actual Number of Grade XII Students	Students Without IQ Record	Probable Number of Unfound Selected Students	Probable Number (total) of Sel- ected Students
100	23	278	8	333	55	8% of 55 = 4	27
200	14	325	4	429	104	4% of 104 = 4	18
300	12	179	7	232	53	7% of 53 = 4	16
400	18	351	5	450	99	5% of 99 = 5	23
500	20	299	7	412	113	7% of 113 = 8	28
600	13	149	9	268	119	9% of 119 = 11	24
700	7	149	5	201	52	5% of 52 = 3	10
800	10	149	7	177	28	7% of 28 = 2	12
Total	117	1879		2502	623	41	158



## CHAPTER II

### SURVEY OF THE LITERATURE

#### 1. Defining Giftedness

The literature manifests no common definition of 'giftedness'. However, one is able to distinguish two relatively clear centers-of-thought. One supports a broad definition which includes as gifted anyone who displays superior achievement in any of a number of socially useful fields of endeavor. The other supports a narrower definition which is, for the most part, concerned with 'intellectuality' and the potential of an individual for high achievement in this area.

In Terman's study of the gifted, the standard set for inclusion in the group was approximately 140 IQ on the Stanford Binet Intelligence Test. Terman says, "the standard set was purely arbitrary and was merely intended to insure that subjects admitted to the group would rate within the highest one per cent in general intelligence as measured by the tests used." (1)

Similarly, Laycock associates giftedness with high general intelligence. On the basis of Spearman's theory of intelligence, he argues that it is made up of some critical factor which underlies any creative experience. Accordingly, high achievement in academic subjects, in music, in the arts or in mechanics is attributable basically to one's general intelligence. He defines a gifted child as one believed to have high intellectual endowment, whether or not he is currently using his creative ability. (2)

In her work with the gifted, Hollingworth defined them as those in the upper one per cent of the population in intelligence, and she claimed general intelligence to be an ability to abstract symbols, a power to work with ideas.



She was convinced that success of a scholastic nature depended upon so-called general intelligence. (3)

The other center of thought is expressed by Witty, He questions the acceptability of an IQ test as a device which validly and reliably measures one's ability to meet problem situations and successfully overcome them through one's originality and creativity. He equates intelligence with an adaptive power of the individual to successfully meet sudden and unusual demands. He says that this kind of ability is the kind of intelligence the world is most concerned about. (4)

In these terms, Witty is able to define as gifted "any child whose performance is consistently remarkable in any potentially valuable area." (5)

There are those who point out the need to broaden the definition of 'giftedness', and who suggest the word 'talented' describes a capacity for outstanding achievement which more clearly conveys concern with a number of superior abilities. To them 'gifted' is a limited definition since it connotes high intellectual endowment only. (6) Bristow and others discuss how giftedness may be characterized by either a high level of general intelligence as measured by intelligence tests, or by special abilities which are not necessarily associated with a high IQ. Thus, the definition of giftedness may include a much greater percentage than one per cent. It may include up to ten out of every hundred if individuals have the opportunities which enable the development of their talents. (7)

It is pointed out by Strang that if we accept the broad definition "we include not only high performance on IQ tests but also creative talent in an almost unlimited range of socially useful endeavor." (3) She argues that special





talent is usually associated with above average intellectual ability. (9)

One of the most recent views expressed on the subject is that of DeHaan and Havighurst. They distinguish between first-order and second-order giftedness. The first-order gifted are the 'extremely gifted' who appear in the upper one-tenth of one per cent of the general population in a given ability; the second-order gifted are those in the upper ten per cent in a given ability. They use the term 'gifted children' to denote those who appear in the upper ten per cent category. (10) This writer recognizes that definitions are made for man rather than man for definitions; that categories are determined to meet the needs of the situation at hand. Therefore, for the purposes of this study, the writer, in line with the thinking of Terman, Laycock and Hollingworth, defines giftedness as high general intelligence as measured by intelligence tests. The gifted subjects in this study are students who achieved a score on the Dominion Intelligence Test which placed them in the upper three per cent of the juvenile population in intellectual ability. It is assumed, from the results of the test, that these subjects have a high degree of ability to work with abstract ideas, and because they have a high general intelligence they are also likely to be talented in other fields such as fine arts, music, social relations and mechanics.

## 2. The Aims of Education of the Gifted

There are relatively few gifted youth in the juvenile population. Thinking of giftedness as high intellectual endowment one can say that only one in every hundred tests at or above 130 on the Stanford-Binet Intelligence Test. The broader definition may include up to ten per cent of any given ability. From either point of view there is a limited number of gifted youth.

Recognizing this important fact, Hollingworth asked the question, 'What





does society want from these persons?' What does society aim for in the education of the gifted? These are the persons who can do those things that the rest of the population, by definition, will never be able to do. These are the persons who are in a position to learn over and above anything learned by those who test below them. (11)

In an attempt to outline the aims of education for the gifted, DeHaan and Havighurst suggest three essential goals for any worthy program: discovery, development, and utilization. They say:

Discovery is necessary because much potential talent goes unrecognized. Development is necessary because no complex ability will evolve of its own accord. Gifted children must be motivated and shown how to develop their talents. Utilization is necessary because this is the social and individual justification for the discovery and development of talent. (12)

In developing giftedness, the American Association For Gifted Children says there has been formulated a concept of the best culture medium for giftedness. By 'culture medium' they mean that at each stage of a gifted student's development he needs to be surrounded by an environment which will enable him to develop his potential to the fullest extent. Without the culture medium being provided, giftedness may be slow in developing or inhibited altogether.(13)

Discussing the aims of education for the gifted, the National Society for the Study of Education agrees that the aims of education for the gifted are the same as for other children. But they go on to say that there must be greater emphasis placed on developing the gifted student's creative ability, on stimulating him to take the intellectual initiative, on developing his ability to do critical thinking, on his need for social adjustment, on his need to take social responsibility and develop unselfish leadership qualities. (14)



Similarly, Passow outlines the aims in such a way that American secondary schools would become resource pools of highly able, liberally educated youth. The gifted especially would be high consumers of the American cultural heritage. They would develop ethical standards because of the school's understanding of them and its opportunity to socialize them. (15)

The kind of education that suits the needs of the gifted is outlined by Laycock. It is the kind that interests and challenges them to develop generalized habits of thinking and studying. It challenges them to acquire a broad background of knowledge and to form particular individually and socially valuable attitudes and appreciations. In the development of these ideas, Laycock urges schools to plan experiences and provide adequate guidance so that the gifted will use their abilities to develop habits which will prove valuable to them and to society. The gifted should be challenged by the nature of their education to acquire a broad background of knowledge concerning the history of civilization which will prove important to them as the raw material out of which their later creativity develops. This author believes that the schools should especially aim to develop in the gifted an attitude of integrity, the ability to reasonably get along with others, a general mental health, and an understanding of the rich rewards awaiting them in the world of the arts and in nature. (16)

### 3. Criticisms of the Current Education of the Gifted

The implications of findings of research carried on by the United States Office of Scientific Personnel of the National Research Council are that there is a considerable loss of potential talent occurring throughout the educational system. Hattery suggests the following reasons for this situation:

- (1) There is a slowing up by schools of the mental development of talented students to such a degree that it effectively



- blocks recognition and development of their talents.
- (2) Talented students are eliminated from schools in a number of cases.
  - (3) There develops with many talented students interests and training away from fields of higher learning.
  - (4) There is a lack of influence of high school teachers on talented students to continue their education. (17)

While admitting that some talented individuals emerge in spite of a lack of recognition or guidance, Passow and others argue that there are many more who might develop if they were provided with the proper educational programs and guidance. According to these authors:

Surveys indicate how little some schools are doing for the intellectually gifted, about whose characteristics and learning patterns a great deal is already known. Even less attention has sometimes been given to the needs of youngsters with outstanding ability in art, music, creative writing, drama, social leadership, mechanics, or in a specific academic area such as mathematics, science or language. (18)

Probably not half of those individuals who show youthful promise as gifted children achieve in adulthood the success their potential would permit. (19)

In one American study it is estimated that less than half of the upper 25 per cent of all high school graduates earn degrees from colleges. The reason given for this state of affairs, in part at least, is that "the brightest youth do not secure the education that would enable them to work at levels for which they are potentially qualified." (20)

In all probability this situation exists in Canada as well. In support of this statement there is evidence which shows that at least half the students with IQ's above one hundred never finish their secondary education. Two reasons





given for this situation, reasons which reflect on the schools, are the nature of the school curriculum and lack of recognition of superior students. (21)

Clarke found that fifteen per cent of the students who started school in 1939 (in grade one) passed out of grade twelve, and only three percent went on to University, with two per cent graduating. (22)

Similarly, in a Toronto study by Jackson it was found that nearly fifty per cent of the students with IQ's 115 and above never complete secondary school. Of the group that remain to receive their high school diplomas, only one out of three enter university. Of the students who receive their high school diplomas and have an IQ of 130 or above, only four out of ten go on to university. (23)

Laycock claims that, in the main, the gifted in Canadian schools do not achieve in accordance with their abilities. Many have poor study habits and do not think deeply and critically. Many hold scholarship in disrepute. Such are the conditions which prevent the gifted from making use of their abilities. Laycock says, "There is accumulating evidence both of the great need our nation has for the contributions of its gifted boys and girls and of its failure to encourage the development of such children." (24)

Apparently, gifted students are unchallenged by the school programs in which they find themselves. School to them is uninteresting. In a large number of the gifted the school has been unable to create the desire to carry on with their education.

There are studies which show that the subject matter in academic classes as it is provided in regular classes is not challenging to gifted students. (25) Witty states, "The gifted child is offered little that is challenging in the





typical elementary school and the neglect is even greater in the high school." (26)

Strang states that when schools do not provide 'suitable experiences' gifted students are prevented from achieving full intellectual and social stature. She contends that intelligence 'unfolds' in response to experiences designed to help it do so. The school's responsibility is to provide those experiences for the gifted which will 'unfold' their capabilities. She discusses some of the conditions which prevent growth: "....a curriculum that has no meaning, use or purpose for the child; a high school environment which causes the high school adolescent to suppress his real intellectual interests and avoid getting high marks in order to be accepted by his classmates." (27)

Terman asks the question, 'What are the non-intellectual factors that affect success in school life?' From his studies of the gifted he is able to answer that holding a gifted student at the educational level of the average students results in a loss of enthusiasm for school and school studies. Such retardation affects the student's motivation and adjustment in an adverse manner. He says, "For the gifted it does matter that the pace is set so largely by dull minds. The inhibiting effect of slow or stupid learners upon quick or bright ones seems to be almost a universal law among the social animals." (28)

Over and above general criticism of current practices in the education of gifted children and youth, there has been direct criticism of the education of the gifted in comprehensive-type secondary schools. Passow has consolidated some of the most common of these criticisms:

- (1) Such schools fail to get many of the brightest youth to go on to college and advanced training.
- (2) Guidance and educational procedures fall short in motivating able youth when judged according to two criteria: the number of gifted youth working up to capacity; and, the number who will go on to college.



- (3) The educational process in American schools lacks the quality found in European schools, and as a consequence, gifted youth suffer.
- (4) The comprehensive high school program is watered down, fragmented, and incohesive. Courses are thinned to make them palatable to students neither academically inclined nor college bound. (29)

#### 4. Administration and Staff Recognition of the Special Needs of Gifted Students

##### (1) Organizational Adaptations

A decision to provide for the gifted a challenging educational program implies organizational changes in the school's administrative system. Of course, there is no 'one-and-only' pattern of administrative organization or pattern of educational program for gifted children and youth. However, a program will appear in response to the degree to which the school capitalizes on the particular local situation in which it is located and in response to the extent to which administrators and teachers are willing and able to provide the curriculum which best suits the needs of gifted students.

Weglein discusses the general problems faced by school administrators who decide to plan a program for the education of their gifted students. To begin with, there is the problem of identifying those students to be served by such a program. Secondly, there is the problem of deciding whether they shall be taught in regular classes or in segregated classes. Thirdly, a decision must be made as to whether or not they shall be accelerated or be provided with an enriched curriculum. Fourthly, the nature and the scope of the curriculum must be determined, and the manner in which teachers will bring together students and curriculum. Fifthly, the administration must be prepared to face problems in articulation between the elementary, junior high, and high school levels. In the sixth place,



they must decide on what basis the teachers of the gifted are to be selected. They must be teachers with adequate experience and the appropriate training, academically and professionally. Obviously all teachers are not equally effective with the gifted; therefore, some means of selection will have to be devised to get those teachers best fitted to teach the gifted. Finally, the administrators will face difficulties in convincing school board members and the public in general of the soundness of any extra finances that will be required to insure the success of the programme, at least from the viewpoint of supplying the necessary facilities. (30)

(The estimated cost of educating the gifted amounts to approximately one to three per cent of the total school budget.) (31)

DeHaan and Havighurst would add some further considerations to this above list: administrators must get the cooperation of all those who will be involved in the program; they need to carefully plan the role of the guidance department in such a program; ideally, there should be a program-coordinator for the education of the gifted and a faculty committee, the function of which would be to represent the viewpoint of the teachers concerning the program; administrators will need to make provision for periodic evaluations and improvements of the program. (32)

## (2) Identification

Today high schools are characterized by a student body displaying a wide range of individual differences. This is especially true of comprehensive schools called in Alberta composite high schools. These schools developed as a means of enabling school administrators and teachers to provide for the variety of interests, aptitudes, and abilities brought to the secondary schools by increasing numbers of students who have decided to carry on with their education past the elementary school level.







For any school interested in adequately meeting the needs of its students, "the chief problem is to separate the individual pupil from the mass and take steps to afford him every opportunity for the best of educational facilities that it is possible to provide." (33)

Thus, if a school is to meet adequately the needs of its gifted students it must identify them and the nature of their 'gifts'.

"This task of making better use of superior ability can be divided into two parts, namely, finding those of superior ability and educating them properly." (34)

In terms of the broad definition of giftedness the school is responsible for devising a means of identification which will as accurately as possible measure actual and potential achievement in a wide variety of areas.

Passow and others discuss the various components of 'talent' which they consider should be assessed in any complete program of identification. They suggest talent is made up of intelligence (general and specific), critical judgment, creative ability, academic and non-academic aptitudes. Within the scope of non-academic aptitudes they consider such things as musical, artistic, and dramatic potential, as well as aptitude for human relations and mechanical aptitude. (35)

Obviously, in undertaking the kind of identification program implied by the broad definition of giftedness or talent, the traditional means of selection by intelligence tests is inadequate. Witty says, close association between high IQ and creativity is no longer unequivocally held. (36)

Even those authorities who define 'gifted' with major emphasis on



high general intelligence insist upon identifying practices being something more than decisions based on the results of IQ tests. For example, Laycock says, (A gifted child should be selected for training only on the basis of all available data, not merely on the basis of an IQ obtained from group tests of mental ability." (37)

He suggests a planned search carried out on four fronts: (1) an active search for gifted students by individual teachers; (2) discussion in staff conference of those who may be gifted pupils in the school; (3) a talent-scout or gifted children committee of the teaching staff; (4) close cooperation with parents. Of course, he assumes in his discussion of a planned search for the gifted, that all those involved (administrators, teachers, and parents) will have sufficient knowledge of what they are attempting to do to insure that the results are based as much as possible on objective findings. (38)

The American Association For Gifted Children supports the following means of identification: mental tests, aptitude tests, reports of parents, reports of teachers and other professional workers, age-grade status, school accomplishment, and achievement tests. Commenting on each of these means of identification they believe that the most effective single device for selecting gifted students is the mental test. Aptitude tests are helpful in that they throw light on the nature of one's abilities when interpreted by competent persons. The reports of teachers and parents may prove helpful, but it is important to remember that such persons tend to be subjectively biased about certain children in an altogether unwarranted manner. Age-grade status, because of present administrative practices is of little use now as a selection device. Standardized achievements tests do a better job of identifying the gifted than do teachers' marks. (39)



Instruments for measuring talents in fields other than that of mental ability are few in number, and for the most part have not proved completely satisfactory. Therefore it remains for local schools to develop ways and means of presenting opportunities for all their students to take part in activities and be judged by competent individuals as to whether they show extraordinary achievement or potential for such achievement if given the chance to develop. For example, in art, music or drama, schools should provide for the participation of students in activities where they may be judged as gifted or not gifted. Student government, club activities and athletic programmes should enable students to take part in developing social leadership skills. Such considerations as these are necessary when giftedness is defined broadly.

An identification program which aims to discover all the talented youth who deserve an enriched curriculum and special facilities demands considerable planning and organizing on the part of the school's administrators.

### (3) A Challenging Curriculum

Observers generally agree, once interested, gifted students desire to have their capacities challenged. (40) And so it appears that the problem for school administrators is that of providing the kind of curriculum and extra-class experiences which will challenge them to fulfill their promise, working up to capacity in the program provided for their best development.

In accord with this line of thinking, Conant says, "There must be courses of different difficulty and different method in secondary schools." (41) He opposes the idea of placing the quick and the slow together in classes where the ones are held back and the others are pushed beyond their capacities. He says, "The criterion for membership (in school courses) should be neither a student's intention in life, nor his background, nor the kind of diploma for





which he is aiming, but simply whether or not a given course is best for him.... which is to say a criterion of ability." (42)

If the majority of present day secondary schools on the North American continent decide to offer their gifted students a challenging curriculum, it will be necessary to answer some pertinent questions: (1) Are the schools at present able to supply the gifted with what they need and want? (2) What parts of the traditional curriculum must be revised in order to meet the individual needs of gifted students? (3) How can the school insure that the program shall remain flexible? (43)

These are only some of the important issues that will demand attention by administrators if they aim to properly educate gifted students. From the literature it would appear as though very few have been willing to face the problem and attempt a solution.

In view of this lack of attention to the problem there will be those who take issue with the statement that gifted students need a special brand of education if they are to be challenged. In refuting them, authorities point out that such students have fundamental curriculum needs, saying that a program for the gifted students:

Is only worthwhile if it stretches them; they need wider and more varied experiences than average and dull students; they need an outlet for emotional expression through art, music and athletics; they need wide reading and oral discussion opportunities; and they need opportunities to develop social talents. (44)

There have been numerous specific curriculum suggestions made by competent authorities. For example, the gifted, once they have mastered the fundamentals should spend some of their time in individual and small-group project work. The books supplied to them should be different than those supplied average students, and the gifted should be provided with more books than the average. They should be allowed to visit the library when they've finished their regular work. The gifted need more instructional material than do average students, as





well as opportunities for participation in activities of a cultural nature. Teachers of the gifted must realize that what their gifted students need most are 'intellectual adventures, a stimulating environment, and an opportunity for creative expression.' (45)

There are examples of secondary schools that have recognized the importance of making special curriculum provisions for the gifted. For example, in New York City students with superior ability are segregated into subject classes "so that the course of study can be covered more thoroughly and, in many cases, so that the course of study can be amplified by dignified work that will stimulate mental growth in consonance with their greater mental ability." (46)

In schools where special classes are not feasible, it is possible to make special provision in the curriculum offerings for gifted students by having each teacher approach his teaching job by thinking of his students individually. Wilson claims this has been done in a number of schools with very favorable results for enrichment. He notes however, to be successful, students must be given the time and facilities to pursue their varied interests.(47)

#### (4) Teaching the Gifted

The literature dealing with the education of the gifted generally recognizes that teaching gifted students is a process quite different than that involved in teaching those who are not gifted. Teachers of the gifted may be successful if they recognize that their approach must be determined by considerations, some of which, if they operate at all, operate differently when they teach the non-gifted.

Strang discusses the considerations involved in the teaching of the gifted. She theorizes that ability or talent emerges or does not emerge as an



individual interacts with his environment. Which is to say, one's environment helps or hinders the proper development of one's potentialities. Since the superior student is capable of using his environment to good advantage he should be surrounded by those conditions which will enable him to so use it. Once placed in a 'lush' environment, teachers should insure that the gifted have the necessary freedom to use it to best advantage. It is to be expected that the gifted, with their organizing capacity, will make the most use of a free environment. (48)

Social conditions in the school can help or hinder the development of the gifted. Such students sometimes purposely make lower marks than their ability warrants in order to be acceptable to their less able peers. And so teachers are unwise if they single out the gifted student for praise or as an example of scholarship if it tends to divorce the gifted student from the rest of the group. (49)

The attitudes and expectations of the gifted by the social group surrounding them play an important part in the development of the gifted. Strang says that those individuals with whom the gifted are in relatively constant contact can "either stimulate them or discourage them from developing their gifts and using them for social purposes." (50)

An important implication here would appear to be that the attitudes and expectations of admired and respected teachers may be of considerable importance in influencing the decisions and actions of gifted students. On the other hand, unadmired teachers who command no respect may have an adverse affect on the best development of the gifted.

The process by which gifted students learn holds implications for the teachers' approach to them. Teachers should prepare lessons and conduct lessons and learning activities knowing that "the gifted learn by complex assoc-



iative methods rather than by simple direct rote drill; they look for abstract or generalized rules underlying all school subjects; they are able to do independent work." (51)

In her discussion of the theory of learning and its relation to teaching the gifted, Strang presents a number of ideas that teachers of the gifted need to consider as they meet such students day by day. For example, the gifted especially must see a need to learn if they are to learn at all adequately. Gifted students do their best in problem solving learning. Incentives will increase their learning if they understand and desire them. Threat of failure tends to disorganize the performance of the gifted, especially those from upper and middle class homes where off-spring are usually very highly motivated to succeed in academic work. Rivalry will effectively increase their performance if it is constructive. Stimuli that satisfy needs tend to promote their learning. Retention of material by the gifted is affected by a number of factors, some of which are the student's ability to learn, his need for learning, the completeness of his learning, the quality of the teacher's instruction, and the nature of the student-teacher relationship.(52)

Strang claims that if the gifted have effectively learned the tool subjects they usually take the initiative at school and go ahead on their own. She says, "All they need is some help from the teachers when they are ready for it, encouragement at home, and rich library facilities, science laboratories, and opportunities for art, music, and social experiences." (53)

When the gifted were themselves asked what conditions they consider conducive to learning they replied that they want teachers who do not allow them to develop the habit of loafing in school, they want to be able to take the subjects in which they are interested, even if this means carrying extra







subjects, they want to learn to express themselves before others and to take part in stimulating discussions, they want to apply theories and principles in the solution of their own life problems, they want to be in a position to match wits with other gifted students, and they want to learn how to read and study efficiently. (54)

There are a variety of techniques which teachers may use in teaching gifted students. These techniques have been found through experience to yield rich rewards in student interest and effort when used by competent teachers. Some of them are: the use of local resources to make the classroom into a 'laboratory for learning'; the use of stimulating class discussions; reporting on outside reading to classes by gifted students; the use of combined group and individual instruction with the emphasis in the teacher's approach on the interests of the students; provision of a variety of activities in both the arts and the sciences as well as in group and individual recreation. (55)

More specifically, some of the means used by successful teachers of the gifted have been reported. They include such procedures as having students prepare, chair, and summarize discussions, making them responsible for the successful completion of assignments which require critical thought, having them help the teacher in planning class activities, having them tutor individual students or groups of students, having them assist in the school library and as laboratory assistants, having them prepare exhibits of their project work and supply leadership on research committees, having them read books at advanced levels and making them responsible for the selection of books for the school library, having them write plays and radio scripts, giving them the opportunity to organize and provide executive leadership in school government and school clubs, and having



them prepare school publications. This list by no means exhausts the variety of ways in which teachers may involve gifted students in challenging learning experiences. (56)

#### (5) In-Service Training

Good teaching of the gifted is described by Laycock as that which provides them reasonable opportunities to develop in terms of their own unique needs and abilities. He says, "The teacher has the right to expect from every child according to his ability, and she has the duty to give to each according to his need." (57)

It follows then, if teachers are to do a good job in teaching the gifted, in addition to having scholarship and a wide cultural background, they must know what to expect from the gifted in terms of their abilities, and must know what to give according to their needs. In other words, if she is to effectively teach the gifted student, the teacher must understand him and his problems, and as well be able to prescribe ways and means of solving his problems and meeting his needs.

Davis says, "The education of gifted children required gifted teachers who have the ability to recognize giftedness, to create an atmosphere and environment favorable to its development, to provide conditions that give it a chance to emerge and blossom." (58)

Assuming that teachers leave training institutions with a reasonable knowledge of what is involved in the education of gifted youth, there still remains a need for teachers to keep up-to-date on new developments in the field. This means that there is a need for the in-service training and supervision of the teachers of the gifted within schools and school systems.

There are some, undoubtedly, who would question the assumption above,



and suggest instead that teachers leaving training institutions possess a very inadequate background of knowledge dealing specifically with the education of the gifted. If this is so, then it is more important still that in-service training that has to do with the education of gifted children be carried on in local schools and school systems.

In-service training is essential because if an administrator expects a teacher to effectively teach gifted students, then he must be prepared to help the teacher find his own unique way of doing this. There should be a program supervisor or consultant whose task it is to serve all the schools in a system from the central offices, circulating ideas and plans among the schools and acting as a mediator in the human relations problems which any such program most certainly will entail. (59)

The American Association For Gifted Children lists a number of effective methods of in-service training and supervision:

"(1) Casual conversations with individual teachers in which they are encouraged to express and develop their ideas about the education of gifted children.

(2) Exchanging accounts of successful procedures of work with gifted children.

(3) Case studies and conferences concerning children who are not developing their potentialities.

(4) Child study groups and parent study groups.

(5) Institutes, conferences, faculty meetings, workshops, university summer and extension courses and seminars devoted to the practical problems of educating gifted children.

(6) Excursions and visits to social agencies, industries, professional and technical schools, and other places of interest.

(7) Informal reading and study groups which are provided with fine professional books related to the education of gifted children." (60)

## 5. Enrichment

### (1) Definition

Enrichment is a concept in education which concerns only the gifted. It is an admission that gifted students require something more than the regular course work offered average students. Enriched courses are planned to enable the





gifted to expand their learning beyond the confines of the regular course of studies; they are planned to allow the gifted to delve more deeply into the course of studies. Because of the extensive and intensive nature of enrichment, class work and out-of-class work can be developed which challenges the interests, aptitudes and abilities of the gifted students involved in the program.

Laycock makes it clear that enrichment is a teaching device and not an administrative device for meeting the needs of gifted students. According to him, administrative devices make enrichment possible, they provide a setting in which it can take place. (61)

DeHaan and Havighurst suggest that a school concerned about the education of its gifted students should direct its efforts toward making enrichment possible and effective. (62) These authors have outlined the aims of secondary school enrichment:

In general, the objectives of secondary school programs for gifted pupils are one or more of the following: (1) to teach subjects and stimulate attitudes that will make a boy or girl a better citizen, parent, and neighbor; (2) to teach subjects and encourage the development of skills in an area of probable career specialization, such as science, mathematics, or foreign language; (3) to give potential leaders opportunity to practice the arts of leadership in academic work and in extracurricular activities; (4) to move a boy or girl rapidly into an adult place following graduation from college (Here the procedure is some form of acceleration). (63)

The most forceful argument put forth by the proponents of enrichment is that it is just 'good teaching'. It is, in other words, an attempt to individualize instruction for the gifted to as great a degree as is possible within the existing school organization.





If enrichment of the curriculum is to be a workable teaching device, the administration of the school must provide all the facilities and time for planning required by the teachers as they attempt to insure the success of the program.

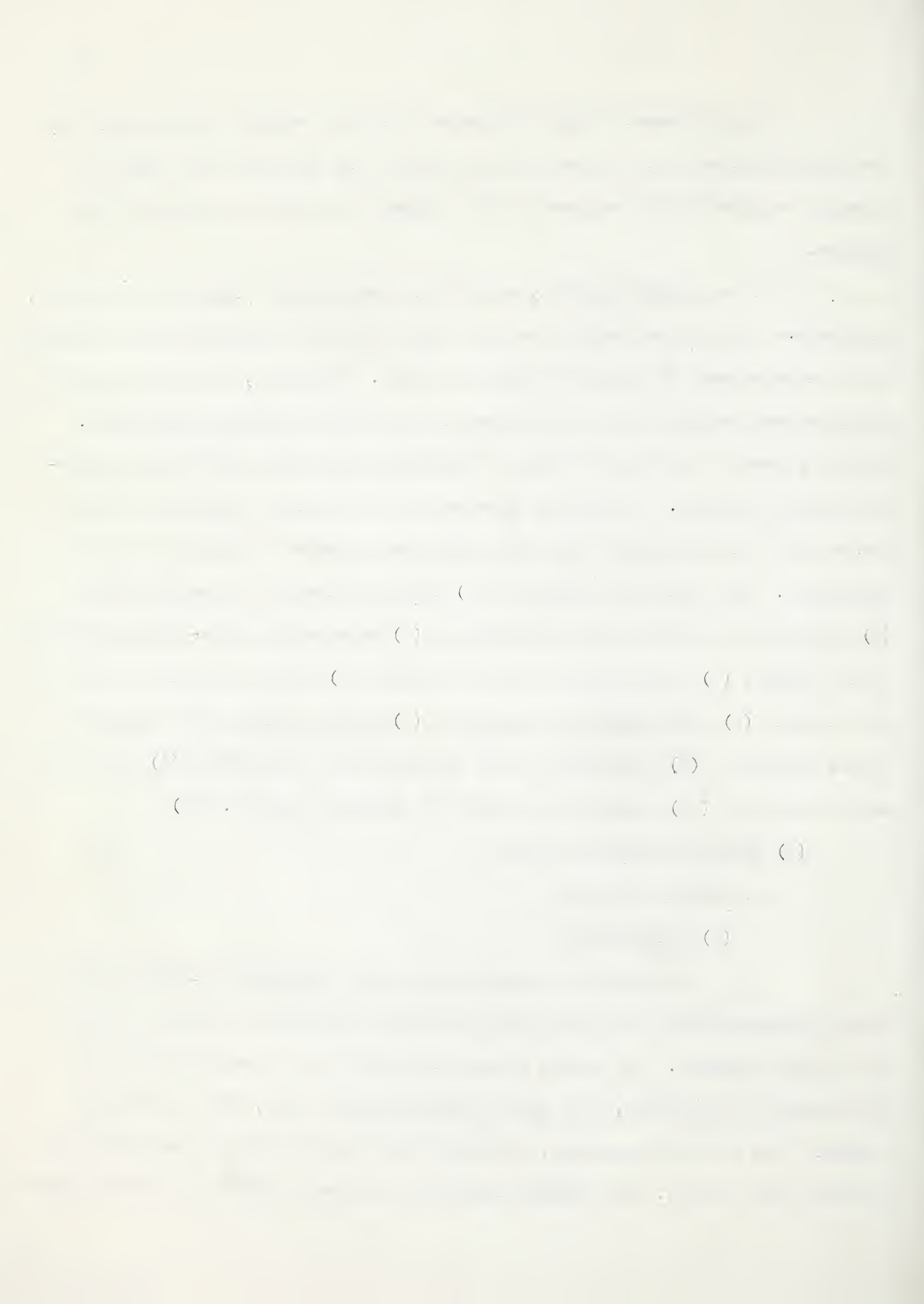
In a secondary school, enrichment usually means 'enriched curriculum'. It involves elective and honour courses, clubs and other extracurricular activities which serve to meet the needs of gifted students. Obviously, any school offering electives and extracurricular activities is to a degree supplying enrichment. Laycock presents a variety of means of enriching curricular offerings and extra-curricular offerings. He suggests that as well as elective courses and honour courses and extracurricular activities there are a number of means of further enrichment. His list is as follows: (1) through guidance in general reading; (2) stimulation of hobbies and collections; (3) encouraging extra-class activities in the school; (4) producing and acting in plays; (5) making excursions to places of interest; (6) using community resources; (7) making contacts with the gifted in the community; (8) providing special facilities for the gifted; (9) providing extra electives; (10) engaging in school and community service. (64)

## (2) Making Enrichment possible

### A. Ability Grouping

#### (i) Introduction

In general the authorities agree that gifted students need special provision made for them above and beyond that which is offered average high school students. The gifted possess the ability to do mental tasks of a high degree of difficulty, they have a broad attention span, they quickly gain insights into problem situations, and they find it relatively easy to generalize on facts they observe. They demand the kind of education which will stretch these



capacities rather than the run-of-the-mill type of course of studies which leaves them uninterested and bored, the victims of a growing inability to study properly and think critically. (65)

There have been and still are those who argue that in a democracy all children should have the same educational training. According to Terman, "This is as absurd as saying all children should receive the same medical care." (66) Rather than the same kind of education these students need to carry on small-group work, they need individualized instruction, a suitable arrangement of furnishings and adequate equipment, they need a wide range of instructional material and a broad plan of studies. All this suggests the necessity of gathering students who are gifted apart from the great mass of students where they will be provided with centralized facilities and an enriched curriculum (67).

From her experience with gifted students Hollingworth concluded:

From observations of the progress of highly intelligent children tested at an early age, I offer the hypothesis that pupils of 130 to 150 IQ on the Stanford Binet have quite enough to do in the truly efficient pursuit of the college preparatory curriculum of the senior high schools, and they do not need enrichment of this curriculum as far as challenge to ability is concerned. What these pupils need is merely freedom from the presence of great masses of classmates who are mentally unadapted to the college preparatory course, and the opportunity to work unhampered in segregated groups...(68)

Wilson suggests that while he is not in favor of isolating gifted students in separate academic schools he is in favor of more ability grouping within the comprehensive high schools than is, for the most part, presently practiced. (69)

Segregation of the gifted may be accomplished in a variety of

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ways: special schools, special classes, partial segregation in particular subjects, and by streaming. Ability grouping is only one means which enables schools to adequately enrich the curriculum for the gifted. Other means, which will be subsequently discussed, are acceleration, individual attention in regular classes, and by extracurricular activities.

#### (ii) Special classes

The establishment of special classes for the gifted is one means by which a school may undertake to provide the organization of program which will enable the curriculum to be enriched. Setting up special classes implies that the administration is willing to supply the facilities and teachers who will develop courses and extra-class activities challenging to the gifted. There is no use segregating the gifted in special classes unless there are teachers willing and able to educate them properly.

This type of segregation has both its supporters and opponents. Laycock has summarized the arguments for and against. The reasons given in favor of special classes are: students in such classes are required to meet higher achievement standards; they have less chance to develop habits of laziness; such classes make enrichment of the curriculum relatively easy; there is more time available for gifted students to partake of creative activities and out-of-school visits to places of interest such as libraries, museums, and industrial plants; chances are high that, because the gifted are homogeneously grouped they will stimulate one another's thinking, and activities will be of an experimental nature requiring critical thinking on the part of the students; being with his peers in so many activities will result in the gifted students developing a more realistic assessment of their strengths and weaknesses; by developing better study habits and having to meet more demanding standards,





the gifted will be better prepared to do successful university work; special classes can be under the direction of qualified teachers; they more certainly take advantage of the opportunities available for the development of the students enrolled than do regular classes. The arguments against providing special classes for the gifted are as follows: they are undemocratic, giving opportunities to the gifted which are denied the other students; they prevent the gifted from mingling with all types of students, something they need to do for later success in adulthood; they develop snobbish attitudes in the gifted and feelings of inferiority in those not chosen to be members; such segregation results in overwork and a corresponding lack of time on the part of the student for participation in extracurricular activities; those not in the special classes miss the stimulation that comes from being associated with the gifted; it is difficult to get teachers to teach classes from which the gifted have been withdrawn. (70)

In spite of arguments put forward against special classes, Witty reports, "Surveys and articles describing practices in the secondary school reveal a rise in the formation of classes for gifted pupils." (71)

Scheifele insists that full time classes for the gifted present the opportunity to "offer an enriched program featuring a greater variety of activities, individual projects, and research commensurate with the superior abilities of the gifted." (72)

It is argued by Carlson that being in special classes can mean that the gifted students are not held back in their learning. Rather, they are allowed to learn rapidly, leaving undisturbed their inherent patterns and rhythm which means the avoidance of personality problems which arise out of unchallenging school work. (73)



Following a study of the benefits which accrue to the gifted from being in special classes, Schwartz concludes that students learn to discuss with their peers the problems of life within their grasp, they develop initiative and independence of thought and they develop a 'community-mindedness' which directs them to use their powers for the benefit of their fellowmen. (74)

Mayer compared the achievement of high school pupils grouped into classes by the use of IQ tests with pupils similar in ability taught in heterogeneous classes in the subjects Latin and Algebra. He found that "superior and medium pupils do appreciably better in segregated than in mixed classes." (75)

A double advantage is afforded by segregation, according to Martens. It permits bright children to work in an enriched program with classmates of similar mental ability, and as well it leaves them free to associate with children of all levels of intelligence in social activities. (76)

Evidence is presented by Lorge to show that "special classes engender significant gains in knowledge, while maintaining for the gifted the expected growth in personality, values, and interests." (77)

According to Miller and Otto, studies of homogeneous grouping seem to indicate that it may be effective if it is accompanied by proper adaptation in methods and materials. (78)

Brown measured the achievement of thirty gifted children who were in a special class for two years (grades seven and eight), and reported successful results. Academically they continued to manifest superior performance. Their interests and activities outside of school remained essentially normal. Twenty-six of them were planning to go to college. (79)

The effects of belonging to special classes on the mental health of students was evaluated by Carlson. He judges them to be desirable. (80)



In general teachers favor the establishment of special classes as the best means of meeting the needs of gifted students. In one study it was found that "younger teachers and those who had worked in such classes tended to favor the special classes." (81)

Kenner reports the classification of 5,000 pupils in junior high schools in Chicago in terms of the Otis Classification Test was at first skeptically accepted by teachers and principals, but that "after nearly two years of trial they almost unanimously consider homogeneous grouping the best means of caring for individual differences under present conditions." (82)

Justman and Wrightstone report that 46 out of the 74 replies from 79 junior high school principals in New York City favor retaining special classes for the gifted, whereas 28 favored abolishing them. (83)

From the literature dealing with the education of gifted children and youth it would appear that an increased degree of ability grouping is probably desirable. Wilson says:

Much of the success of extra curriculum activities as in music or dramatics or debating or athletics is due to ability grouping within those fields. The same degree of ability grouping in activities calling for intellectual operation is desirable and is in no sense undemocratic. (84)

#### (iii) Partial segregation

There may be merit in the argument that schools should create those conditions which allow the growth of superior capacities in an environment of intellectual freedom, and at the same time insure the contributions to personal, social, and vocational development which comes from the daily association with all kinds of minds. Which is to say, school authorities should devise some means of enabling gifted students to spend part of their school time mixing with the wide range of abilities, interests, and aptitudes found only in heterogeneous classes.





Scheifele says it is possible to provide for the gifted "a part time program in which selected children spend a portion of each day with their own grade group and the remainder of the day in a special class, doing independent research and other projects of an advanced nature." (85) She points out that opportunities for the talented may also be offered through 'special interest groups' maintained in the school or in the community under the direction of interested citizens.

DeHaan and Havighurst say that through special grouping school authorities find it relatively simple to provide for students' special interests. This may be accomplished by placing the students in regular classes most of the school day and in special interest classes for the remainder of the day. (86)

Part-time special classes are usually referred to as 'honours classes'. An example is cited by Wilson: Each honours class is open only to senior students and is restricted to a limited number. The students are given freedom with a good teacher to make their own program. Wilson describes the success of such a system:

The stimulation and intellectual excitement of these groups was so great that the prestige of the honours classes soon equalled the prestige of the football team. Able pupils, from their first weeks in the school, began to work for entrance into a senior honours class. The honours classes did college level work, and their existence raised the whole intellectual level of the school. (87)

According to Alpern, in a discussion of what is done in educating superior students in the high schools of New York City, any student showing particular aptitude in a high school subject is placed in an honours





class in that subject, while for the remainder of their subjects they remain in regular classes. Such honors classes are found in science, mathematics, art, music, social studies, English, and foreign languages. In these classes the students receive a more advanced type of instruction or take part in more extensive offerings than they would receive in regular classes. (88)

Laycock describes the use of special seminars for the gifted under the capable direction of qualified teachers who have been relieved of some of their regular teaching duties in order to plan for the seminar periods.(89) This author also discusses the multiple track system as another means of partial segregation possible within the comprehensive-type secondary schools. Such schools may be divided into what he calls 'sub-schools' and may include an 'honor school' for gifted students. (90)

A rather unique idea has been expressed by Thorndike. He suggests the advisability of releasing the gifted from constant association with the less able by providing a special room for the gifted. Here they would be able to read and study and carry on individual or small-group projects. The room would be available on a schedule, open to the gifted when they are not needed in their regular classrooms. It is one answer to the question, "What can a school do to help if it cannot provide special classes with special curricula and methods?" (91)

#### B. Acceleration

From the literature it would appear that acceleration is a misunderstood term in education. It is sometimes used synonymously with grade-skipping. The result of grade-skipping is that a student misses one level (grade) of educational experience in order to move into the level above, thereby creating



a gap in his educational background. In the past, grade skipping was a popular way to take care of bright students. Today most authorities would agree that this is an unacceptable form of acceleration.

Against this definition there is the modern conception of the term. Acceleration is defined as the provision of the opportunity by school administrators for gifted students to move "at a pace appropriate to their ability and maturity and to complete an educational program in less than the ordinary time." (92)

Similarly, Rideout defines acceleration as any administrative device which makes it possible for a student to complete his course of study at an earlier age than does the average student. (93)

Passow and others say "acceleration means progress through an educational program at rates faster or ages younger than conventional." (94)

The modern conception of the term is distinguished from grade-skipping in that modern definitions do not imply 'jumps' from one level to another with the resulting gaps in educational experience. Acceleration means a more rapid consecutive sequential movement through the grades.

Those who advocate acceleration point out the following advantages: It enables those who have contributions to make to the welfare of society to more quickly assume their adult responsibilities; accelerated gifted students finish their public schooling sooner, thereby gaining more time to spend in undergraduate and graduate studies at institutions of higher learning; gifted students can be accelerated without an undue amount of



'pushing' from teachers; if gifted students are held back in the traditional lock-step system the chances are greater that they will develop social and emotional problems; it does away with boredom and frustration which is characteristic of bright students working below the level of their potentialities; acceleration decreases the possibility of the gifted learning poor study habits; the risk of social maladjustment resulting from acceleration is not as great as is commonly believed; heterogeneous grouping of students inhibits the teachers' chances to successfully individualize instruction for each of their students because chronological age grouping is not a sensible means of grouping if one wishes to get as little heterogeneity of ability as possible. Acceleration tends to group students on a better basis for meeting the needs of gifted students. (95)

The arguments against acceleration have been summarized as follows: accelerated students are younger than their classmates and so are more susceptible to emotional and social problems; the assumption that comparable mental ages means similarity in mental functioning may be fallacious; accelerated students do not get an enriched curriculum, but rather cover the material which is covered by the average students; grade-skipping results in gaps in the students' educational experience; full acceleration means that students need to be doing equally as well in all their subjects and this is usually not the case; more than likely accelerants will be set apart from their age-mates because they have been singled out as different by the authorities; acceleration reduces the number of years spent in public school and gets students to university teachers at an age which such teachers are unprepared to handle. University professors are prepared to deal with older students.(96)



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In spite of the arguments against acceleration, the literature manifests increasing evidence to support the practice as a worthwhile means of enabling schools to meet the challenge of the education of gifted children.

Terman and Oden compared the school performance of equated groups of accelerants and non-accelerants. Their findings indicate "the accelerants did better in high school, more graduated from college, more graduated with honors and more of those graduating continued with graduate work." (97)

As for their social development, it has been found that there is no significant difference between equated groups of accelerants and non-accelerants in either childhood or adult life. And, as adults, the accelerates were to be found more often in the 'A' group for occupational success than were the non-accelerates. (98)

In a study by Pressy some relationships of acceleration to success in College were investigated. It was concluded, "The evidence was practically unanimous that younger entrants were more likely to graduate, had the best academic records, won the most honors, and presented the lowest disciplinary difficulties." (99)

Justman investigated the personal and social adjustment of intellectually gifted accelerants and non-accelerants in junior high schools and found there was very little difference. (100)

For Terman, it was not a question of whether or not to accelerate, but rather a question of how much acceleration is proper. From his studies of gifted children Terman says there is no 'one and only' rule governing how much acceleration is defensible. Decisions should be made in terms of the brightness of the students and the degree of their physical, emotional and social



maturity. He says, "It is our opinion that children of 135 IQ or higher should be promoted sufficiently to permit college entrance by the age of seventeen at the latest, and that a majority of this group would be better off to enter at sixteen." (101)

Most other authorities agree that any program of acceleration should be based on the premise that students shall be moved ahead only after careful study has been made of their personality, abilities, and aptitudes, and physical maturity.

Acceleration may be achieved in a variety of ways. Students may be placed in 'special progress classes' and cover three years' work in two, or four years' work in three. Students cover all the material ordinarily covered at a school level, but they do it in considerably less time. Another means of acceleration is to allow students judged capable to enter university following grade eleven. They get something more than grade twelve during their first year at college because they begin to specialize immediately. Acceleration may be accomplished by doing college-level work in the high school so that students going on to university enter with advanced standing. (102)

As well as the methods outlined above, Laycock suggests another. He proposes that students be allowed to enroll in classes (one or more) one grade level above the one in which they are enrolled. He refers to this method as special promotion in subject matter areas. (103)

School administrators have not been convinced by the findings of research that acceleration is a profitable means of challenging gifted students. The American Association for Gifted Children reports that typical high schools very seldom accelerate gifted students. Krueger and others report from surveys made of American school administrators that "only 15 per cent of the junior and

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senior high school principals believed that pupils of superior ability should complete the school curriculum in less time than the average." (104)

DeHaan and Havighurst support the claim that acceleration should be used as a means of meeting the needs of gifted students. They support their argument with judgments of parents, teachers, as well as by evaluations with tests of achievement and social adjustment. They say:

It appears that one- or two-year acceleration of a gifted child works out very well provided the child is physically and socially developed at least to the average level for his age. But mere acceleration into the grade above often fails to provide enrichment of the gifted child's experience. (105)

It is imperative that along with acceleration there must go a degree of planned enrichment.

#### C. Individual Attention In Regular Classes

There are those in education who oppose the provision of enriched offerings to the gifted by any device which suggests segregation or acceleration. They support the idea that the gifted can be given challenging experiences in regular classrooms while profiting from their associations with other students of all levels of abilities, interests, and aptitudes.

The wide range of abilities and interests found in regular classrooms holds implications for education. The wider the distribution of individual differences the more difficult it becomes to adequately meet the needs of all those present. If students are to receive the kind of education that best suits their individual uniqueness, then differentiation of class members for teaching purposes is demanded. Which is to say, teachers must be concerned with the education of each class member rather than with the class as a whole. The more similar each class member is in those factors important in their education, the simpler it is to deal with the class as a whole. The wider the range of diff-





erences, the more difficult it becomes to deal with the class as a whole. If each student is to be taught on the basis of his individuality,,then it becomes the school's responsibility to know what to expect of each student intellectually and otherwise. The school must discover his aptitudes and any weaknesses he may have, as well as know and deal with any non-intellectual factors which may be affecting his behaviour. (106)

Regular class teachers must approach their classes while thinking in terms of individual students. In large classes this would pose an impossible problem if it weren't possible to use groupings within the class of students with more or less comparable ability.

Cutts and Moseley made a study of the difficulties teachers face and the methods they use in providing for bright students in regular classrooms. They classified the ways under six main headings:

1. Ability grouping within the class
2. Letting students work at their own level and speed
3. Special assignments
4. Group or individual projects
5. A free choice of work upon completion of regular work
6. Individual work with the teacher upon completion of regular work

Teachers must know the intellectual ability of each of their students and how it corresponds with their achievement. Teachers must be able to relate the students' interests with school work and be able to guide the students' efforts toward self-improvement. Teachers must know how their students are 'getting along' with others and the level of their social maturity. Only as teachers have such knowledge as this can they make the plans necessary to insure the provision of a challenging school experience for each gifted student they encounter.(107)

While there appears to be little question of the premise that special opportunities must be extended to the gifted, authorities are quick to point out that this is especially difficult in regular classes. Providing opportunities for the



best development of the gifted in regular classes will tax the ingenuity of even the ablest instructors. (108)

There may be a problem in determining how to challenge gifted students in regular classes, but there should be no problem of time available in which to challenge them. Cutts and Moseley say, "The bright child, one with an IQ of 120 and above, generally finds it possible to finish the required work even in his hardest subjects in much less time than the great majority of children in heterogeneous classes. The time that is left over poses a problem and affords an opportunity to his teachers." (109)

Concerning the kind of enrichment that gifted students should face in the extra time they will have in regular classes, Scheifele says it should involve "a great variety of activities and materials, more independent study along lines of special interests, as well as group study of a broad unit experience, and greater opportunities for creative expression." (110)

As well as this sort of enrichment provided for students who finish their classwork ahead of their less able classmates, the current trend of thought is that gifted students in secondary schools should receive a different kind of classwork. The gifted are able to master an academic curriculum which would prove to be far above the understanding of those other than the gifted. And such a curriculum should be theirs to stretch their ability and keep them interested. Therefore, in high school classes that are a mixture of abilities, teachers should teach different material to the different levels.

Apparently, then, there are two major considerations administrators must take into account if they plan to keep gifted students in regular classes. First, they must realize that in those schools where planning has been most effect-



ive, enrichment of experiences is implemented through a wealth of instructional resources readily available to the gifted. Secondly, they must make sure that teachers emphasize differentiated class assignments and teach to groups within their classes, varying the material taught in terms of the capacities of the groups.

It is Witty's hypothesis that true enrichment is possible only within a heterogeneous group since such groups encourage:

the variability in response upon which progress, creativity, and indeed survival in a democratic society depend.....true enrichment of instruction occurs when children are stimulated by the presence of different personalities working at different levels. (111)

DeHaan and Havighurst list what they consider to be the three major arguments in favor of maintaining gifted students in regular classes. First, the gifted will be better adjusted socially and emotionally. Secondly, other children in the classroom will benefit from their presence; thirdly, it is a move in the direction of individualizing instruction for all children. They point out that certain conditions are demanded if enrichment is to be a reality. In addition to adequate facilities and materials easily available to the classroom teachers, the size of the class must be limited so that the teacher does not neglect other students in her concern for the gifted. (112)

Expressing this same idea, Roberts says, "Unless classes are limited in numbers and teachers are better prepared academically and professionally, gifted students will find school life dull and unrewarding." (113)

While there are supporters for the practice of keeping gifted students in regular classes, the general trend in current educational theory is special grouping or acceleration. The major objection to enrichment in





regular classes is that it just isn't practiced.

#### D. Extracurricular Activities

It is commonly accepted by those who urge enrichment for gifted students that extracurricular activities afford an excellent means of stimulating superior students to desirable growth in the social, intellectual and physical fields of development.

Witty reports that surveys and descriptions of practice in secondary schools show an increasing use of extracurricular activities in the education of gifted youth.(114)

In their discussion of how to develop creativity and special talents in the gifted, DeHaan and Havighurst suggest there are many ways in which interested teachers can develop students through extracurricular activities. (115)

According to Martens the social adjustment of gifted children may be facilitated "in the more informal atmosphere of clubs and other school organizations in which there is opportunity for securing first hand experiences not otherwise available to the learner." (116)

The Educational Policies Commission of the National Education Association has come out in favor of schools developing extensive programs of extracurricular activities which are especially planned to challenge the talents of the gifted and develop high performance standards.(117)

If extracurricular activities are well-organized and given the proper leadership there is little reason to doubt that the gifted will take an active part in them. In support of this statement Lewis and McGahee found that gifted students are characterized by their very extensive interests. This they found to be especially true in the areas of music and reading where their interests are strikingly different from a similar group of retarded classmates. Other interests that appeal more to the gifted than their less-able classmates appear



to be in dramatics, religious activities, scouting and campfire activities, club activities and collecting. (118)

Special schools for the gifted are characterized often by their stress on the importance of extracurricular activities in the education of bright students. In his discussion of a high school of science for the gifted students Meister says:

The extracurricular work ... occurs both during schools hours and after; within the school building as well as outside. It reflects the interests and activities engendered and stimulated by the curriculum itself. Naturally enough, a large number of school clubs concentrate their interests in related science activities such as: radio, aeronautics, microbiology, glass-blowing, photography, histology, mathematics, bacteriology, engineering, natural history, architecture, astronomy, seamanship, the Science Explorers Club of the freshman year, and others.

Nevertheless, the spontaneous interest in the humanities reflects the broadest scope of the school's objectives. Large groups of boys are attracted to the Creative Writing Club, the Dramatic Society, the staff of the Science Survey (the school newspaper), the Forum, the school orchestra and chorus, the Chess Club, the language societies, as well as to athletic teams.

Included too, in extracurricular activities are the large number of 'squads' that serve in the functioning of departmental offices, libraries, laboratories, preparation rooms, supply depots, gymnasium, and medical rooms, and school offices....These varied groups are unified by a democratic school government, with its council of school representatives and its elected officers, all under the sponsorship of the Student Organization and under the advisership of the faculty committee on extracurricular activities....Freed from the rigidities of the school bell system and from the need for extremely large classes, boys and girls turn frequently to varied forms of extracurricular activities which are conducive to balanced growth. (119)



A survey was carried out in Michigan sampling the opinions of gifted graduates concerning their high school experience. Dressel and Grabow clearly point up the importance of extracurricular activities to the students. A rather startling revelation is that school was pleasurable to many of the graduates only because of the opportunities afforded to take part in challenging and satisfying extra-class experiences. (120)

There is relatively little literature dealing with extracurricular activities and the education of the gifted. This much seems clear, that a school with a science club, an orchestra, track and field teams, a drama society, and such like has gone a considerable distance in motivating students with 'gifts' in these fields.

#### 6. Guidance Services

The value of psychological testing and counseling as means of guiding young people is firmly established. Those who are concerned with the education of the gifted have given over considerable space in the literature to discussions of the importance of guidance as an aid to the best development of gifted students.

Strang outlines the nature of a satisfactory 'developmental guidance program' for the gifted. According to her, it aims to recognize and understand their abilities and needs; it seeks to provide those home, school, and community experiences that research shows to be desirable and necessary; it makes connections between each individual's needs and the resources available to satisfy those needs; it assists the gifted to select suitable curriculum





programs and progress satisfactorily in them; it helps each student to conceptualize his most acceptable self; it seeks to have the gifted understand their responsibilities to society in terms of their talents; and it encourages them to build psychologically for emotional maturity. (121)

It would appear from the literature that there are two major sources of guidance within any secondary school: that which comes from the guidance department through guidance counselors, and that which the gifted receive from their teachers.

In discussing the role of the school's guidance department, Passow and others suggest that the major responsibility is to develop and carry out a 'talent identification program.' In addition, members of the guidance department should keep up-to-date records on the correlation between ability and achievement in the case of each gifted student. Guidance officials should play an important part in assisting students select courses and career choices. As well as assisting the gifted to plan their academic programs, guidance officials should encourage them to take part in non-academic areas of the school's activities, which will develop their inherent talents "without jeopardizing their rounded development or their opportunity to go to college." (122)

As part of the in-service training program in the school, the guidance department should interpret the needs of the gifted to teachers. They should maintain a liaison between school and community, alerting interested agencies to the special needs of the talented. Guidance officials working with teachers should have a specific concern for gifted under-achievers. They should be responsible for interpreting to parents the vocational needs of the gifted.



They should obtain scholarships to be used during the high school careers of gifted students, and especially when they finish high school should there be bursaries and scholarships available to carry them on to further education. The guidance department is in a position to make knowledge available to aid the administration in making decisions concerning the education of the gifted.(123)

Pintner stresses the importance of the psychological testing program in the guidance of the gifted. He says, "Along with increased time we should give to a more complete testing of each child, there should go a systematic repetition of tests throughout the whole school career." (124)

If secondary schools are to adequately educate gifted students, they must aim to have teachers aware of the special needs of the gifted and overcome the attitude that the gifted can take care of themselves. They must overcome the indifference of important community folk and local school officials. Teachers must become interested in learning more about the gifted and the best ways of enriching their educational experiences. (125) In view of this, it seems reasonable to propose that the guidance department, in conjunction with administrative authorities, are in the best position to work effectively toward the achievement of the above aims.

The guidance of the gifted may be enhanced if parents as well as teachers are aware of what research has discovered concerning them and their education. Guidance officials can act as interpreters for parents.

In the same way they can assist the gifted to be accepted by teachers, students, parents, the public and the gifted themselves. Laycock stresses the vital necessity for others to accept gifted students emotionally...



with a warm understanding. He says this is one of the most important steps that can be taken in helping the gifted. (126)

DeHaan and Havighurst point out that it is the school's responsibility to inform students of the financial help available to assist them in going to college. They also suggest that guidance officials should counsel parents concerning the need for achievement and the importance of value being set upon achievement by the home. They say, "This counseling should consist not so much of advising parents about their children's vocational choices as of helping parents to understand how their attitudes and relationships with their children affect their children's motivation." (127)

Ryan and others discuss the importance of conferences with the gifted, individually, as a means of contributing to their best development. (128)

The school principal is specifically responsible for the careful consideration which needs to be given the guidance program and its role in the education of gifted youth. DeHaan and Havighurst say:

It should be planned as a continuous function. Teachers should be furnished with guidance information pertinent to their pupils. The daily schedule should be planned in such a way that teachers and pupils have time for conferences and guidance activities. Supplies for an adequate testing program as well as adequate file and record space need to be provided. (129)

So far the discussion has centered around the role of the guidance department. In recognizing the importance of the guidance department it must be noted that there is considerable support for the idea that teachers, acting as teacher-counselors, may be critical factors in the best development of the gifted.

For example, Bruner claims that classmembers can be led by teachers "to evaluate their own progress in developing and properly using their talents." (130)





Teachers in class discussions, and informally through conferences with individual students can provide valuable guidance for the gifted. The teacher is in an ideal position to motivate students to want to achieve and develop their abilities. The teacher can interest them in entering socially useful and self-satisfying vocations. (131)

Strang says that while it is true the gifted are able to solve many of their problems, yet in some instances they need help from adults. She suggests, "a competent teacher can give such help at the psychological moment." (132)

There will be times when gifted students will display an increasing maladjustment. This calls for a concerted effort on the part of teachers, parents, the school's guidance department and outside psychiatric agencies. Schools should not hesitate to call upon any who are in a better position to assist than are the schools' facilities in the reclamation of such students.(133)

In concluding this section on the relation of the guidance department to the gifted student program, there remains an important consideration which perhaps receives less attention by educators than it deserves.

Probably there are few who would argue with the premise that persons occupying positions of power in the social structure should be wise and able persons. Reasonably one might expect the schools to play an important role in accepting responsibility for the development of the potentialities of the gifted, who, under the proper circumstances can be expected to become the leaders of tomorrow. Getting them 'to the top' involves not only respect for the individual and his capacities, but as well it is a matter of concern for the welfare of the state. Hollingworth was brave enough to say, "No government will succeed which keeps stupid people at the top. It must devise means



to discover and educate the able, and for its own welfare give them positions of influence and power." (134)

That the number of very able students going on to higher training is considerably less than should be expected, is a very real cause for concern to those who have the future welfare of Canada at heart. One investigator reports that economic and social factors make it impossible for over half the high school seniors with high ability to go on directly to college. Of those that do go on, "almost thirty per cent of the top decile in intelligence fail to attain significant achievement in scholarship because of emotional, educational, personal, financial, or other problems." (135)

Terman and Oden estimated that "forty per cent of the young men and women who are potentially good college material either do not enter college, or if they enter, do not graduate." (136) Of Terman's group of gifted children, fifteen per cent did not enter college and thirty per cent did not graduate. He claims that adequate counselling could have overcome this wastage. (137)

A follow-up study of the top sixteen per cent of a group of Minnesota high school graduates was reported by Witty. He says, "In nine years after high school graduation only 45 per cent had received baccalaureate degrees and eight per cent had earned advanced degrees." (138)

The studies reported here have been American studies, but as was pointed out previously, this same general picture is also true for Canada.

It can be demonstrated that guidance throughout the school career of a gifted student, if it is adequate guidance, can direct that student toward higher education and advanced learning. And such a student can be expected, in all probability to become a community leader, or a leader in his field of learning after graduation from university. And knowing this it must still be admitted



that guidance procedures are found wanting when judged by the number of gifted high school students who will go on to college. (139)

## 7. Teachers of the Gifted

In the education of gifted students some considerations are more important than others. In the main, authorities agree that the teachers of gifted students are probably the most important single factor in their development.

Ryan and others say, "Next to the parent, the teacher exerts the most important personal influence on the development of gifted children." (140)

On the basis of his study, Brandwein is able to say, "The teacher is the key, probably the single most important factor in the training of a scientist, or what is more important, in stimulating young people in school to turn to science." (141)

From statements such as these it is clear that teachers are critical factors affecting the wholesome and desirable growth of gifted students. Good teachers are able to make even an uninteresting course of studies into an inspiring experience for their gifted students. Contrariwise, poor teachers are remarkably able to deaden the interest of even the brightest.

The characteristics of successful teachers of the gifted have been expressed both by educational authorities and by the gifted themselves. First, considering the findings of investigators who have observed such teachers in action, Passow stresses the following characteristics:

- (1) Successful teachers of the gifted are extremely capable in their own subject area
- (2) They have a tolerance of new and different ideas
- (3) They are willing to let students proceed on their own
- (4) They are able to direct individual efforts toward their maximum achievement
- (5) If not themselves creative, then they are at least sensitive to the creativity in others
- (6) They are able to stimulate creativity



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- (7) They can accept non-conforming behaviour, allowing a free exchange of ideas and the widest variety of solutions to problems
- (8) They are able to inspire gifted students to strive for higher levels of achievement and develop their unique abilities.(141)

In an article dealing with the teachers of the gifted, Davis says that they are characterized by scholarship and a wide cultural background, they understand the nature of gifted students, they have the ability to recognize giftedness and create an environment conducive to its development. (143)

DeHaan and Havighurst urge administrators to demand the following characteristics when selecting teachers for gifted students: flexibility and creativity, concern for individual differences, resourcefulness in developing teaching techniques, energy, an enthusiasm and burning desire for high standards of achievement, and a desire to teach the gifted. (144)

Brandwein found that teachers who are successful in developing students with high science potential are characterized by high training in science, they have the opportunity to teach, and have successful relations with children in the teaching situation. (145) "These are the teachers students trust, they are sympathetic to their problems, they hold up firm and high standards of achievement and behaviour as well." (146)

Gifted students have been given numerous opportunities to express their ideas concerning the kind of teachers they prefer to have teaching them. Witty reports a study in which the following traits were mentioned as desirable:

- (1) a cooperative democratic attitude
- (2) kindness and consideration for the individual
- (3) patience
- (4) wide interests
- (5) pleasing personal appearance and manner
- (6) fairness and impartiality
- (7) a sense of humor



- (8) good disposition and consistent behaviour
- (9) an interest in pupils problems
- (10) flexibility
- (11) use of recognition and praise
- (12) unusual proficiency in teaching a particular subject  
(mentioned most often by high school pupils) (147)

According to Davis, teachers of the gifted, must satisfy their students as good teachers, must possess a sense of humor, encourage a sense of responsibility, have a knowledge of their subject matter, be firm and fair, understand students and really enjoy teaching. (148)

It is safe to assume that teachers are not providing adequately for the needs of the gifted if such students feel restricted and if they feel they are being overworked and their interests stifled in the classroom. (149)

DeHaan and Havighurst say:

the teacher's attitude toward the education of the gifted is crucial. The teacher will be able to help them if she is sensitive to their needs and willing to make changes in herself, if necessary, in order to give them what they need. (150)

Because good teaching is basically a job in human relations, Laycock says:

....it is vital for the gifted child's best development that there be a warm understanding relationship between him and his teachers....which involves the teacher's accepting the child emotionally as a person and not merely intellectually as a brain. (151)

Unless a teacher's program for her gifted students is a planned program it amounts to a waste of time. Such planning includes a review of the curriculum to see where it can be trimmed for the benefit of the gifted, time scheduled for thinking through an enrichment program for them, and time scheduled for helping the gifted. (152)

Obviously teachers of the gifted need time for planning. To

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make this possible, administrators can limit the total number of classes carried by the gifted, they can have teachers of the gifted teach only one class of gifted students, and they can render assistance through supervisory personnel.(153)

Administrators can reasonably expect those who teach gifted students to be willing to provide something more than what average students get in an ordinary classroom. And teachers of the gifted can be expected to know who these students are and the relationship between ability and achievement in each case. (154)

From the readings one gathers that gifted students need teachers who will be willing to go to great lengths to meet the needs of such students and challenge them to their full potential in a free atmosphere. Such teachers, for example, will associate with community agencies which are in a position to provide opportunities for their gifted students which the schools are unable to provide. Such teachers will lead clubs within the schools focusing on special talents the teacher may have which will interest and benefit gifted students. Such teachers will be willing to give of their time in and out of regular school hours, working with the gifted in libraries, laboratories, the playing fields, and far afield too. These teachers will find that the gifted students recognize that which they are doing for them and acknowledge the efforts of the teachers with respect and interest and high achievement.

Before concluding this section it is necessary to note what the literature has to say about the professional training of teachers of the gifted. The American Association For Gifted Children suggests that teachers of the gifted need to be involved in the 'laboratory type' training experience, where first-hand they develop some of the important attributes demanded by successful





successful teaching of the gifted. For example, they need to develop a point of view concerning their attitudes toward the gifted and those in close association with the gifted. This is to say, there must be an eagerness on their part to see the gifted fulfill their promise and a desire to work with and understand people involved in the process. Teachers of the gifted, while in training, should develop the art and science of successful counseling, since it can be so important in helping to achieve the aims of education for the gifted. Trainees who will later be teaching the gifted need training in the use of group techniques, for it is in group situations skilfully handled by the teacher, that gifted students have their intellectual interests fostered while at the same time experiencing wholesome social growth. And trainees will need to know how to work with parents....especially those who fail to provide experiences at home and in the community that their children need.(155)

In conclusion, research suggests that teachers are the most important single factor in any program for educating gifted children. This is so because they are the key figures in the identification of the gifted and because the teachers put the enrichment plans into operation. Generally speaking students most admire those teachers who are well adjusted and who are genuine in their human relations. They need to know their subject matter, and teachers are best for the gifted if they are somewhat more nimble mentally than teachers of average students, as well as being somewhat more widely read. They need to understand the nature and nurture of gifted children and be anxious to help them grow. With their academic background and professional knowledge of the best means of educating gifted students they must be provided with facilities required if they are to carry out their plans for the best development of the gifted.



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CHAPTER 10. THE HILBERT SPACE

1. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a closed subspace  $M$  of  $H$  is also a closed subspace of  $H$ . (10.1)
2. Let  $H$  be a Hilbert space. Show that the orthogonal complement of the orthogonal complement of a subspace  $M$  of  $H$  is the closure of  $M$ . (10.2)
3. Let  $H$  be a Hilbert space. Show that the orthogonal complement of the orthogonal complement of a closed subspace  $M$  of  $H$  is  $M$ . (10.3)
4. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.4)
5. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.5)
6. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.6)
7. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.7)
8. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.8)
9. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.9)
10. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.10)
11. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.11)
12. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.12)
13. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.13)
14. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.14)
15. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.15)
16. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.16)
17. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.17)
18. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.18)
19. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.19)
20. Let  $H$  be a Hilbert space. Show that the orthogonal complement of a subspace  $M$  of  $H$  is the set of all vectors  $x$  in  $H$  such that  $x$  is orthogonal to every vector in  $M$ . (10.20)

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# THEORY OF THE EARTH

1. The Earth is a sphere of radius  $R$  and mass  $M$ .

$$M = \frac{4}{3}\pi R^3 \rho \quad (1)$$

2. The density  $\rho$  is constant throughout the Earth.

$$\rho = \frac{M}{\frac{4}{3}\pi R^3} \quad (2)$$

3. The acceleration due to gravity at the surface is  $g$ .

$$g = \frac{GM}{R^2} = \frac{G \cdot \frac{4}{3}\pi R^3 \rho}{R^2} \quad (3)$$

4. The acceleration due to gravity at a distance  $r$  from the center is  $g_r$ .

$$g_r = \frac{GM_r}{r^2} = \frac{G \cdot \frac{4}{3}\pi r^3 \rho}{r^2} \quad (4)$$

5. The acceleration due to gravity at the surface is  $g$ .

$$g = \frac{GM}{R^2} \quad (5)$$

6. The acceleration due to gravity at a distance  $r$  from the center is  $g_r$ .

$$g_r = \frac{GM_r}{r^2} \quad (6)$$

7. The acceleration due to gravity at the surface is  $g$ .

$$g = \frac{GM}{R^2} \quad (7)$$

8. The acceleration due to gravity at a distance  $r$  from the center is  $g_r$ .

$$g_r = \frac{GM_r}{r^2} \quad (8)$$

9. The acceleration due to gravity at the surface is  $g$ .

$$g = \frac{GM}{R^2} \quad (9)$$

10. The acceleration due to gravity at a distance  $r$  from the center is  $g_r$ .

$$g_r = \frac{GM_r}{r^2} \quad (10)$$

11. The acceleration due to gravity at the surface is  $g$ .

$$g = \frac{GM}{R^2} \quad (11)$$

12. The acceleration due to gravity at a distance  $r$  from the center is  $g_r$ .

$$g_r = \frac{GM_r}{r^2} \quad (12)$$

13. The acceleration due to gravity at the surface is  $g$ .

$$g = \frac{GM}{R^2} \quad (13)$$

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## CHAPTER III

## THE EDUCATION OF GIFTED STUDENTS IN SECONDARY SCHOOLS:

## CRITERIA OF A GOOD PROGRAMME (156)

If secondary schools aim to equalize educational opportunities so that the unique interests and abilities of all students will be fully challenged, the schools need to recognize that there are ways and means of educating gifted students which will serve to enhance their best development. In other words, if secondary schools purposely set out to meet the needs of gifted students with a challenging education that will direct them into socially useful occupations and assist them in achieving social and emotional maturity, such schools will be characterized by a set of criteria which make for a good secondary school programme for gifted youth.

Schools with a good programme for the gifted will aim to discover their superior students and attempt to understand the nature of their 'gifts'. The schools will make possible by means of administrative devices a programme that will provide 'enriched' experiences for gifted students. Administrators and teachers will recognize that the gifted need an education that is different from that offered the average and less-able, a curriculum deepened and widened to meet the needs of each individual gifted student. The schools will consciously set out to motivate gifted youth by a variety of ways and means, getting them to put forth their very best efforts to achieve successfully high academic standing, fuller physical development, and an emotional and social maturity which results in healthful human relations. The schools will recognize that beyond the boundaries of their limited resources exist a wide variety of community resources which may be used to benefit the development of gifted students. Administrative officials in such schools will undertake to provide

THE HISTORY OF THE UNITED STATES OF AMERICA

(THE HISTORY OF THE UNITED STATES OF AMERICA)

The history of the United States of America is a story of a young nation that grew from a small colony of English settlers to a powerful world superpower. The story begins in 1492 when Christopher Columbus discovered the New World. The first English settlers arrived in 1607 at Jamestown, Virginia. The Pilgrims arrived in 1620 at Plymouth, Massachusetts. The American Revolution began in 1775 and ended in 1781 with the Battle of Yorktown. The United States Declaration of Independence was signed on July 4, 1776. The Constitution was signed on September 17, 1787. The Civil War was fought from 1861 to 1865. The American Civil War was a war between the Northern states and the Southern states. The war ended with the Union's victory. The Reconstruction era followed the Civil War. The Progressive Era was a period of social and political reform. The Great Depression was a period of economic hardship. World War II was fought from 1939 to 1945. The Cold War was a period of tension between the United States and the Soviet Union. The Vietnam War was fought from 1955 to 1975. The Watergate scandal was a political scandal in 1972. The Iran-Contra affair was a political scandal in 1986. The Gulf War was fought from 1990 to 1991. The September 11 attacks were a series of terrorist attacks on September 11, 2001. The Iraq War was fought from 2003 to 2011. The 2008 financial crisis was a period of economic hardship. The 2016 presidential election was a surprise victory for Donald Trump. The COVID-19 pandemic was a global health crisis in 2020.

supervisory leadership for the teachers of gifted students, assisting them to obtain what research has found concerning the characteristics of the gifted, the nature of a challenging curriculum, and effective ways and means of providing enriching school experiences.

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## CHAPTER IV

### DISCOVERY OF THE GIFTED

#### 1. The Criterion

A good secondary school programme for gifted students seeks to discover systematically such students. Teachers are provided with objective standards against which they may judge the capabilities of their students. Teachers are given supervisory assistance in the search for gifted students. In addition to the judgments of teachers, the school will use objective tests in finding talented youth. Ordinarily, the use of such tests is confined to intelligence tests and standardized achievement tests. Some use will be made of aptitude tests.

Non-academic talent (e.g.-- dramatic ability, musical ability, etcetera) for the most part is discovered by obtaining the results of students' efforts in the various talent areas and having it judged by competent judges.

#### 2. Current Composite School Practice

School 100 The two major means of identification are the daily classroom performance of students, as teachers observe them in action, and the results of final examinations each year. Intelligence test scores are used as supplementary evidence. Standardized achievement tests are used for classification purposes in the commercial department.

School 200 The most important single means of identification are the results of group intelligence tests. Some students are selected on the basis of teachers' judgments of their classwork and performance in extracurricular activities. In some cases decisions are based on students' past records as shown in cumulative record folders.

THE  
SOCIETY OF THE  
FUTURE

CHAPTER I

It is a common mistake to suppose that the future is a fixed and unchangeable thing. In fact, the future is a thing of many faces, and it is only by looking at it from many different points of view that we can begin to understand it. The future is not a single line, but a vast and complex web of possibilities. It is a web that is constantly changing, and it is a web that is shaped by the choices we make today. The future is not a destination, but a journey. It is a journey that is full of challenges and opportunities, and it is a journey that is worth the effort.

(The following is a list of the names of the members of the Society of the Future, as of the 1st of January, 1900.)

1. Mr. John Doe, President.

2. Mr. James Smith, Vice-President.

3. Mr. Robert Brown, Secretary.

4. Mr. William White, Treasurer.

5. Mr. Charles Black, Member.

6. Mr. Thomas Green, Member.

7. Mr. Richard Hill, Member.

8. Mr. Daniel Lee, Member.

9. Mr. John King, Member.

10. Mr. William Scott, Member.

11. Mr. Charles Adams, Member.

12. Mr. Thomas Baker, Member.

13. Mr. Richard Clark, Member.

14. Mr. Daniel Evans, Member.

15. Mr. John Foster, Member.

16. Mr. William Gibson, Member.

17. Mr. Charles Hall, Member.

18. Mr. Thomas Hunt, Member.

19. Mr. Richard Jones, Member.

20. Mr. Daniel King, Member.

21. Mr. John Lee, Member.

22. Mr. William Miller, Member.

23. Mr. Charles Moore, Member.

24. Mr. Thomas Nelson, Member.

25. Mr. Richard Oliver, Member.

School 300 Students are identified as intellectually gifted by means of a group intelligence test administered in Grade X. Cumulative record folders are sometimes used for further evidence. Teachers, each year are requested by guidance officials to name their top students in terms of academic ability, and talent in music, art, drama, and shopwork.

School 400 A group intelligence test administered to students in Grade X, the results of the Department of Education's standardized reading test administered to Grade IX students, and teachers' judgments form the basis of the selection of gifted students at this school. Teachers are required to submit a list of their outstanding students to the school's administrative offices. Teachers decide on the basis of their own reactions to students as individuals and in terms of students' achievement on the teachers' tests.

School 500 The basis of selection at this school is a students' cumulative record folder, a group test of intelligence given to all Grade X students, and the judgments of teachers. Teachers evaluate the potential of students in terms of their classwork, the leadership qualities they display in extracurricular activities, and staff room discussions of particular students in some cases.

School 600 Here the Grade IX departmental final examinations results are the most important factor in the decision concerning giftedness. As supplementary evidence, IQ scores are available from a test given to Grade X students. On infrequent occasions standardized achievement tests are given to selected students in mathematics and English.

School 700 A group intelligence test is administered to Grade X students. The results, along with information from students' permanent



school record cards, form the bases upon which decisions are made concerning the giftedness of students. The school record cards contain the students' achievement in their regular classwork as measured by teacher-made tests.

School 800 This school identifies its gifted students by referring to Grade IX departmental examination results, group intelligence test results from a test administered in Grade X, the results of standardized achievement tests given to all students in Grade X in the fields of language and reading, and finally, teachers' judgments. Whether or not a student is to be considered gifted sometimes comes up for discussion at staff meetings.

Summary Alberta composite high schools identify gifted students on the bases of group intelligence test scores, marks from departmental final examinations (which may be considered by some as an achievement test), teachers' judgments, and previous school records found in students' cumulative record folders. On occasion decisions are made through discussions at staff meetings. Only rarely are standardized achievement tests used.

School officials are concerned mainly with the identification of high academic ability, or high IQ. There is very little concern for the discovery of talents in non-academic areas such as art, music, drama, social leadership, and mechanics.

### 3. Outcomes of Current Practice

The question may now be raised, "Do the teachers in Alberta composite high schools know who are the gifted students in their classes?" Presumably, if teachers are to provide a special brand of education for gifted students they must know who those students are. It should be recalled that giftedness for the purpose of this study has been defined as high intellectual ability. Students who score high on intelligence tests are said to be gifted. In the eight composite high schools the vast majority of students have been tested for IQ. These scores, along with each student's academic achievement record,





are available in the central offices of the schools. Teachers are free to use such information.

The teachers of the selected group of Grade XII students were asked to name their gifted students without reference to any records. The investigator assumed that if the teachers knew any of their gifted students they should know the students named in the selected group. These students are to be found in the top three per cent of the juvenile population in intelligence as measured by the Dominion IQ test. In all probability, they are students with IQ scores above 125.

Table II shows that the teachers know approximately 36 per cent of their gifted students.

TABLE II

THE PERCENTAGE OF GIFTED GRADE XII STUDENTS IN ALBERTA COMPOSITE  
HIGH SCHOOLS KNOWN TO THEIR TEACHERS  
AS GIFTED STUDENTS

School	100	200	300	400	500	600	700	800	Total	%
Numbers of teachers responding	15	13	18	11	16	11	10	11	105	88
Numbers of possible teacher responses	15	15	27	11	25	12	11	11	127	100
Numbers of pupils it was possible to know	71	67	103	124	98	32	41	67	603	
Numbers of pupils known to teachers	32	28	46	41	32	16	8	14	217	
Percentage of gifted pupils known to teachers	45	42	45	33	33	50	21	21	36	

#### 4. Summary

The data gathered from the school principals concerning the identification of gifted students shows that all the composite high school principals do have the



names of gifted students in terms of intelligence test results. But, while the administration may have the necessary information, teachers who have been working with the students for the most part of a school year are unable to remember any more than 40 per cent of their gifted students.



## CHAPTER V

## MAKING ENRICHMENT POSSIBLE: ADMINISTRATIVE DEVICES

## 1. The Criterion

In secondary schools with good programmes for gifted students, administrators provide the organization which makes efficient and effective enrichment of the curriculum for them possible.

Individual attention to gifted students by teachers in regular heterogeneous classes is one of the ways school administrators may seek to provide for their best development. Some suggest this is the ideal way to educate them. There are others who can strongly support the position that actual enrichment is more likely within the framework of special ability groupings, or by means of acceleration of gifted students, or by means of a combination of the two.

## 2. Current Composite School Practice

## (a) Providing for the gifted in regular classrooms

Two schools out of eight make an effort to keep gifted students in regular classrooms and meet their needs there.

At School 600, ability grouping is said to be "scarcely feasible" because of the nature of the school's administrative organization. To have special classes would curtail the students' elective choices. Rather than do that, the principal retains gifted students in regular classes. The principal opposes the practice of ability grouping in principle. He suggests that it is wise to keep bright students where they are in a position to stimulate the less able. At School 700 there is no effort made to place gifted students in special groups. The principal feels that teachers make an attempt to stream students





within their regular classes. According to him, the gifted in regular classes are expected to do more difficult assignments. The principal opposes segregation of the bright because the able group become the 'prestige' group, while the dull students get dumped into the technical courses and are disparaged for being 'dumb'.

(b) Special classes for the gifted

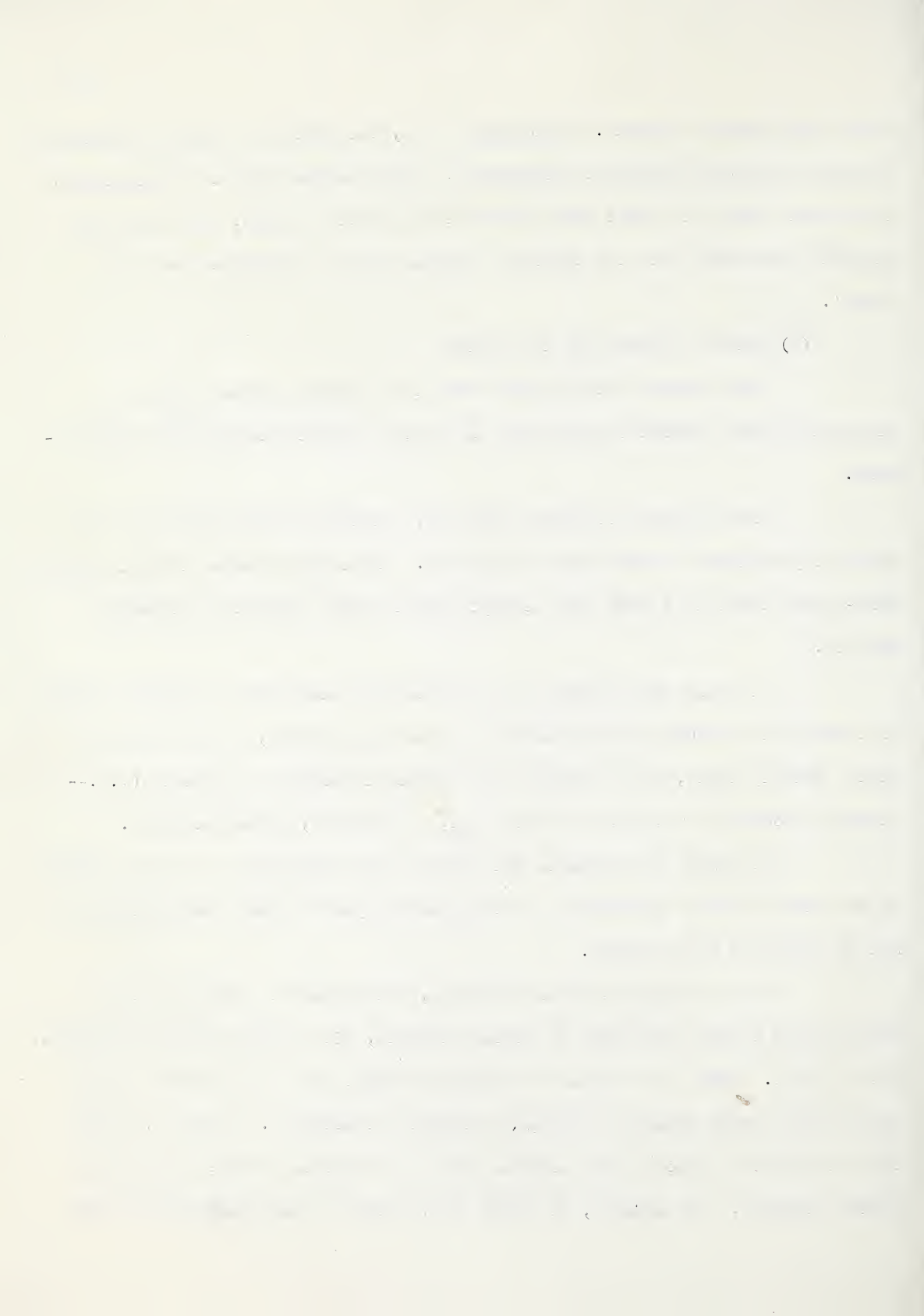
Five schools out of eight claim to be making special efforts to segregate gifted students on the basis of IQ test results and/or school achievement.

The principal at School 200 said, "Certain classes such as 'x' are definitely designed for university prospects. While such classes are not exactly hand-picked there is a very real attempt made to group students in terms of ability."

At School 500 students are selected for membership in special classes in terms of the results they achieved in junior high school, on the basis of mental ability tests, and in terms of the elective choices of students (e.g.-- students choosing to register in Latin are, in the main, gifted students.

At School 100 students are selected for membership in special classes on the basis of their performance on the previous year's final examinations and not on the basis of IQ scores.

The principal at School 300 said, with regard to administrative devices used to meet the needs of gifted students, "It is heterogeneous grouping, yet it isn't. There is a degree of grouping brought about by students' course choices and groups develop in terms of students' timetables." That is, within the matriculation pattern some courses chosen by students automatically group gifted students. For example, at School 300, French 11 and Mathematics 31 are



more or less 'gifted classes' because of the entrance requirements.

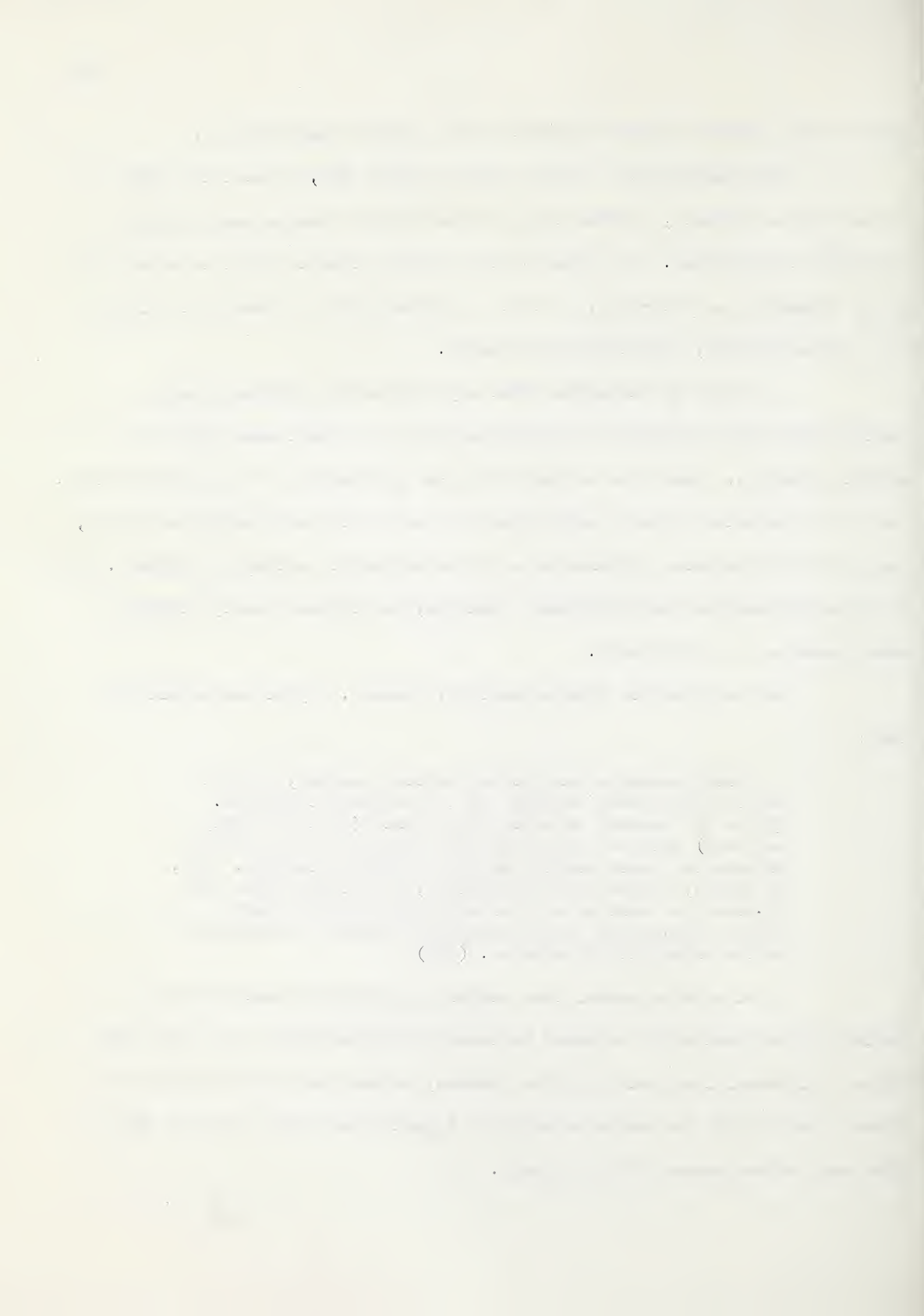
The administrative device used at School 800, to meet the needs of the most able students, is what the principal called "homogeneous grouping according to programme." In terms of the classes students elect to enter they group themselves ability-wise, so that the gifted are in classes with others, less gifted perhaps, but still very capable.

It should be recognized that any high school offering course patterns and elective choices is characterized by at least some degree of ability grouping, regardless of the particular philosophy of the administration. Out of 117 selected students only three were not in the matriculation pattern. Nearly all the selected students were in the university entrance programme. It is to be assumed that this programme contains, for the most part, students above average in intelligence.

One may question this assumption, however. Byrne has pointed out that:

both historical and social factors account, in part for the continuing strength of the academic tradition. By far the greater majority of students (fifty to sixty per cent) entering the province's composite high schools selects the route leading to matriculation standing. Few, of course, achieve their objective, as not more than five to seven per cent of all who enter provincial schools finally secure the coveted standing required for admission to the University of Alberta. (157)

Is it safe to assume that students entering the matriculation pattern are automatically streamed in terms of high ability? It seems from Byrne's statement that matriculation classes, unless consciously grouped in terms of ability by the administration of a particular school, are for the most part heterogeneous ability groups.



(c) Acceleration

In all eight schools the administration made it clear to the investigator that it is very difficult to accelerate gifted students because of regulations of the Department of Education. Every matriculation course has its prerequisites and a student is allowed to earn a maximum of 40 credits a year.

There have been cases of acceleration in at least two of the schools, but it required special permission from the Department. To get such permission, according to one principal, "was quite a battle."

Out of 117 students only two were considered to be accelerants. They were covering three years' work in two years.

Four of the eight principals said they believed acceleration may be a good idea and would be in favor of increasing the amount of acceleration of gifted students. One of the eight was definitely opposed to the idea and said that students should remain a full three years in senior high school.

(Note: He opposes only one type of acceleration)

Summary The majority of Alberta's composite high schools make what they consider to be a conscious effort to group gifted students in terms of their ability as indicated by intelligence tests and/or school achievement. In all the schools there is some degree of ability grouping because of course electives and course pattern choices such as the matriculation pattern. Two schools oppose any idea of segregating bright students from the less able. They set out to limit segregation to the degree possible through students' course choices.

The regulations of the Department of Education make it very difficult for the high schools to accelerate gifted students. At least half the principals





are in favor of accelerating some students if it were made more possible for them to do so.

### 3. Outcomes of Current Practice

Teachers were asked what they consider to be the most ideal means by which composite high schools could meet the needs of gifted students from the viewpoint of administrative organization. Table III shows that approximately 70 per cent of the teachers expressed the idea that gifted students should be segregated from their less-able classmates for instruction. Approximately 40 per cent said that smaller classes would help to make them provide more ideally for gifted students.

TABLE III

THE PER CENT OF TEACHERS OF A SELECTED GROUP OF GRADE XII STUDENTS EXPRESSING OPINIONS CONCERNING THE ADMINISTRATIVE PROCEDURES THAT WOULD MOST ASSIST THEM TO BETTER MEET THE NEEDS OF GIFTED STUDENTS

School	Segregation of the gifted			Smaller classes	
	No. of responses	For segreg.	Other than segreg.	For smaller classes	Other than smaller classes
100	6/8	3	3	4	2
200	8/9	6	2	6	2
300	7/9	5	2	1	6
400	5/6	2	3	2	3
500	15/16	13	2	8	7
600	6/11	5	1	0	6
700	9/10	5	4	3	6
800	8/9	6	2	4	4
T & %	64/78 (82)	45 (69)	20 (31)	28 (44)	36 (56)



The selected teachers were asked to list the main reasons why they were unable to do all that they might have wished to do for the gifted students in their classes. The three most common reasons are:

1. Heterogeneous classes (33/69) 48 per cent
2. Lack of time (27/69) 39 per cent
3. Too large classes (22/69) 32 per cent

#### 4. Summary

Administrators of the composite high schools claim to be segregating the gifted students from the less able in the majority of the schools, and it is contended by some that students in the matriculation pattern are automatically segregated into a 'university entrance' ability group. However, teachers of the gifted Grade XII students point out that the reason they are not doing for their gifted students all that they might wish to do is that classes are composed of the bright, average, and dull -- grouped together for instructional purposes. They want to see a policy of segregation instituted by school authorities. This suggests that in spite of what principals may believe, teachers want more segregation than is practiced presently. Also the teachers are hampered in their work with gifted students by large classes and by lack of time to plan for and teach the gifted.

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## FOOTNOTES TO CHAPTER V

- (157) Andrews, J. H. M. and Brown, A. "The Canadian Survey of Composite High Schools". Unpublished Monograph, Division of Educ. Adm., University of Alberta, Edmonton, May, 1958, Chapter 8, p. 9.





## CHAPTER VI

## DEVELOPING GIFTEDNESS: MOTIVATION

## 1. The Criterion (158)

It is generally agreed that before students can develop their talents successfully they must want to develop them. A good programme for gifted youth aims to motivate them to want to achieve high standards in academic work and in their social relations. Authorities have discovered ways and means of increasing the motivation of gifted students.

For example, many students possess gifts of which they are unaware. Giving information to them and to their parents concerning their potentialities often motivates such students to develop their talents, and motivates their parents to assist the development as much as possible.

Once school authorities know the nature of a student's gifts, they can set out to guide the student into curricular and extracurricular activities and experiences that offer what appear to be the best means of development of the student's interests and abilities.

Competent guidance counsellors may prove effective in motivating under-achieving gifted students to do better. Counselling may help to correct faulty study habits and undesirable attitudes toward learning. Counselling may help students overcome emotional stresses and strains. Any of these factors may be causes of under-achievement.

The opportunity to 'tryout' at some activity or other may serve to interest and challenge gifted students to develop their talents. Secondary schools with a good programme for the gifted provide a wide range of 'tryout' opportunities such as a drama club, a science club, a school orchestra, a school newspaper, athletic teams, and so forth.



If gifted students are brought into contact with gifted adults from either the school or the community, it may serve as a means of motivating some of them to want to emulate a particular gifted adult such as a musician, a chemist, a writer, or an artist.

The chance to win rewards for high achievement and outstanding contributions to school life will sometimes motivate gifted students to a remarkably high degree. Such rewards may take the form of honour rolls, membership in honour societies, prizes and scholarships.

In their discussion of motivation, DeHaan and Havighurst say:

Motivation consists of the purposes, ambitions, drives and values of a person. Motivation is what enables a person of potential ability to take advantage of education, to develop and use his talents. Since motivation is something inside a person, the educator cannot manipulate it -- decrease, increase, or change it -- in the same way he handles other parts of the educational program: nevertheless, he can influence motivation. (159)

Teachers and parents are perhaps in the best positions to initiate in many students the drive to be creative, to be leaders, to achieve in consonance with their abilities, to go on to higher education and ultimately to positions of community leadership, and to be leaders in their chosen professions.

With this in mind, the investigator attempted to gather data concerning how Alberta composite high schools motivate gifted students and the degree of success they have achieved.

## 2. Current Composite School Practice

### (a) Guidance

#### (i) Psychological Testing

Intelligence Tests - the eight schools make use of intelligence



tests in the guidance of gifted youth. Schools 200, 400, 500, 600, 700 and 800 administer group tests to all Grade X students and to any students entering school without an IQ score in their records. Schools 100 and 300 rely mostly on IQ scores found in the cumulative record folders of the students from tests administered in junior high school or elementary school. They do administer intelligence tests to those students registering in the respective schools without an IQ score in their records. When in doubt about a student's IQ, School 200 administers a different group test from the one given to the student in Grade X. Schools 600 and 800 administer individual intelligence tests on occasion to some students when the necessity arises. School 800 administers a second group intelligence test to all Grade XII students early in September of each school year.

**Achievement Tests** - Only one school uses achievement tests standardized on a country-wide basis. At School 800, language and reading tests are administered at the beginning of each year to students in Grade X, XI, and XII. Schools 400 and 500 have students write achievement tests that have been standardized on a city-wide basis in some subjects.

**Personality Tests and Inventories** - Four schools out of eight make no use whatsoever of personality tests in the guidance of gifted youth. School 200, to a very limited extent, administers two adjustment tests. Only a limited number of students are involved and these are not necessarily gifted. On occasion School 300 refers students to the guidance department of the provincial university for personality testing. This is done only upon the request of the students. School 500 has teachers annually 'trait-rate' all students for guidance purposes. School 600 administers a problems check-list as the need arises to individual students in order to assist the counsellors to better





guide the students.

Vocational Interest Tests - All eight schools use the Kuder Preference Record as one means of guidance. Schools 100, 200, 300 and 600 administer the Kuder to all Grade X students and to others in XI and XII who register at the respective schools without having such information in their record folders. Schools 400, 500, and 800 get this information from students' records, In these centres the Kuder is administered in junior high school. At school 700 the Kuder is given as the need arises, i.e., as students request it.

Aptitude Tests - Schools 400 and 800 give an aptitude test to all Grade X students and to any others in XI and XII that arrive at the respective schools without such information. School 500 administers the same aptitude test to grade XI students and those in XII who missed it in XI. The same test is given to some students in schools 200 and 700, as the officials feel there is a need for it in specific cases, to assist in vocational guidance.

Other Tests and Records - All the schools make use of the information found in the cumulative record folders of the students. Such information includes the results of previous intelligence tests and standardized achievement tests taken while the students attended elementary and junior high school. All the schools make use of the results of the Department of Education's testing programme involving Grade IX students. This includes the results of an intelligence test, standardized reading scores and the results of the departmental final examination (achievement).

Summary All the schools claim to use the results of group intelligence tests and a vocational interest test in the guidance of gifted students. To a lesser degree the composite high schools' guidance departments make use of aptitude tests. Personality tests and standardized achievement



tests of publishing companies are very rarely used for guidance purposes.

All the schools make use of information gathered by the provincial department of education (e.g. IQ scores, reading achievement scores, academic achievement scores). All of the guidance departments make use of the cumulative record folders of gifted students, each of which contains considerable information on the history of the students' previous schooling.

#### (ii) Availability of Records

In order to discover the extent to which guidance records were available and to whom they were available, the investigator asked the guidance co-ordinator in each high school, "To whom are your records of individual students available?"

In all the schools the records are available to the principals and his assistants or vice-principals. They are available to department heads or co-ordinators and to the teachers. In every case the records are partially available to students and to parents through interviews with guidance officials, Information that is pertinent is also available to university officials, potential employers of students, social welfare officials, and the like. Information given to parents and students is general information concerning the students' interests, aptitudes and abilities, and so forth, depending on the nature of the information contained in the records of the students.

#### (iii) Special Guidance For the Gifted

The investigator asked each of the guidance co-ordinators of the composite high schools, "Is this school offering any special guidance provisions for the gifted students enrolled?" (That is, something other than the regular guidance offered all the students?)



School 100 At this school all grade XII students meet in the auditorium for one period during which time the students are informed of possible scholarships for which they might apply, and the more capable ones are urged to apply. There is an attempt made by the officials in charge to overcome, in the students, the 'I'm not good enough' attitude. Application procedures are outlined. Following the meeting a poster is posted containing the names of all the available scholarships. Students are frequently reminded of the scholarships. Guidance officials hold interviews with interested students.

School 200 An aptitude test is given to those students who will make the most efficient use of the results in formulating their future plans. Many of the gifted are in this group. The availability of scholarships is pointed out to students in Grades X, XI, and XII. Bright students are urged to apply.

School 300 All the students who achieve particularly well on the Christmas and Easter examinations are called together in a special meeting and are informed of the available scholarships and bursaries. It is the school's policy to impress upon students in Grades X and XI the necessity of hard work if they plan to win any scholarships. There is, also, a meeting of Grade XII students, voluntarily attended, at which time the available scholarships are discussed. Interested students are assisted in making out applications.

School 400 Students planning on attending the University of Alberta are interviewed by school guidance officials concerning their vocational choices, and then they are individually interviewed by personnel from the University. Gifted students are individually urged to apply for scholarships.

School 500 Guidance officials are especially interested in maintaining a high positive correlation between achievement and ability. The





principal's belief is that counsellors have been able to give gifted students the kind of guidance that has enabled most of this group to become top achievers academically.

Officials at Schools 600 and 700 said that no special guidance provisions are made available especially for gifted students. At Schools 300, 400 and 800, guidance officials and administrators offer what might be termed special guidance for gifted students. In cooperation with department of education officials these school officials have made it possible for certain students to register in classes in the grade that is one level above them. Thus they are able to carry courses in their last two years of high school which they otherwise would not have been able to take. Such students take two years of language in one, and then take a course the following year in place of the second year of the language. This means that the students earn more than the maximum number of credits ordinarily allowed during three years of high school.

Summary In the main it may be said that special guidance for gifted students in Alberta composite high schools takes the form of supplying them with information concerning available scholarships and bursaries and urging them to apply.

#### (iv) The Nature of Routine Guidance Interviews

The investigator believed it was necessary to find out the nature of counselling received by gifted students in regularly scheduled guidance interviews. The guidance co-ordinator at each school was asked to describe the nature of a typical interview.

School 100 Counsellors concentrate on educational and vocational guidance and spend only a very limited amount of time on personal guidance.



Students are encouraged to consult counsellors on any problems that may be upsetting them. Teachers are encouraged to refer problem cases to the guidance department.

In September of each school year students in Grades X, XI, and XII have their time-tables checked. Counsellors attempt to place students in those patterns and courses in which they are most likely to succeed. During October the Grade X students are sorted into achievement groups. During January and February there is a progress check and the vocational plans of the students are discussed. Also, scholarships are suggested to likely students. There is an attempt made to interview each student once per year in addition to the visit paid by all students to have their time-tables checked in the autumn.

School 200 Students are free to request guidance interviews in addition to their scheduled ones, and frequently do. There is an attempt made by the counsellors to schedule two interviews per student per year. First there is the 'first-of-the-year' interview in order to check students' time-tables and to judge whether or not the students are in the best patterns and courses in terms of their abilities. The second interview centres around a discussion of each student's educational progress, his vocational plans, and any personal problems he may wish to bring up for discussion. Guidance officials are concerned with getting up-to-date information on the student's in-school and out-of-school activities and his home background. Each interview takes approximately thirty-five minutes.

Following the issuance of report cards during the year there

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occurs some special educational guidance for under-achieving students. Superior students are constantly urged to apply for scholarships and bursaries.

School 300 Counsellors try to see each student once per year. In addition to this scheduled interview, students are urged to make appointments if they wish to discuss home, school or personal problems, or get information concerning employment or scholarships.

Guidance in Grade X is a matter of discovering each student's interests, the nature and extent of his involvement in extracurricular activities, checking his time-table, and discussing the importance of choosing a proper high school course pattern....that is, one that suits his interests and abilities.

In Grade XII, guidance is mostly vocational in nature. Counsellors find out the students' future plans. They help students decide their vocational choices by supplying information that can help them make up their mind wisely. Counsellors encourage senior students to apply themselves diligently to hard work in order to achieve a high standing if possible.

As in Grade X, in Grade XI guidance is of an educational and personal nature. A start is made on vocational guidance.

School 400 At the beginning of each year all students make a "quick visit" to guidance counsellors for a time-table check. Later during the year there is a longer "one-period" visit which is concerned with educational and vocational guidance. As early as Grade X vocational guidance begins and becomes increasingly more important.

School 500 Guidance officials aim to meet each student at least once per year for an interview. The length of the interview is approximately thirty minutes and is scheduled through the central school offices. Students





are free to request interviews and some do.

During an interview the student's cumulative record folder is checked to bring it up-to-date; the student's ability and his current achievement are compared and discussed; vocational interests and vocational possibilities are discussed. Gifted students are urged to apply for scholarships.

School 600 Interviews are mainly limited to vocational and educational guidance. During the first part of the school year Grade XII students are met by guidance counsellors. Their vocational plans are discussed and their current programme is checked to see that it fits with their future plans. During the middle portion of the school year guidance officials deal with poor achievers and under-achievers. Toward the end of each school year time is spent with students in Grades X and XI lining up their educational programmes for the next year.

Throughout the school year there is some incidental guidance. This is the result of students' requests for interviews. The extent of such guidance depends on the time available for it. Usually students requesting interviews want information with regard to scholarships and financial assistance available for any who may be interested in going on for further education. Gifted students are urged to apply for scholarships and go on to university.

There is very little personal guidance given students at this school. There is a local branch of the provincial guidance clinic close at hand. Some referrals are made when it is deemed necessary by school authorities.

The guidance coordinator at this school does not believe that all students have problems. Therefore, he does not insist that students must visit the guidance department at least once per year in addition to the time-



table check. It is the school's policy to wait for students to request interviews. It is believed that when students see a need for an interview the results will be more profitable than insisting students come in for an interview whether they feel they need one or not.

School 800 The authorities attempt to insure one visit per student per year. Guidance at the Grade X level and the Grade XI level is more educational than vocational. By Grade XII it becomes mostly vocational. Guidance officials introduce Grade XII students to occupational trends and opportunities. Bright students are encouraged to apply for scholarships. Students planning to go on to university are assisted with registration, others are helped to make plans to apprentice or attend the Technical Institute or enter nursing.

Students who appear to be doing poorly, academically, come in for some special guidance. The probable causes of the students' under-achievement are discussed and students are urged to try and do better if they have the ability, or to change into more suitable courses if they appear to lack ability.

Guidance counsellors work closely with students, parents and teachers in an attempt to get students achieving on a par with their ability level and to get them into those courses most suited to their interests and capacities.

Summary Guidance interviews in Alberta composite high schools are concerned mostly with educational and vocational guidance. There is to be a conscious attempt on the part of guidance counsellors in the majority of



schools to direct students into the courses for which they seem best suited. Much of the interview time is given over to a discussion of students' future plans. Most of the schools attempt to provide approximately thirty minutes of scheduled interview time per student per year. Students are urged to request interviews, if they so desire. Very little time is allotted for guidance of a 'personal problems' nature. Most of the schools' administrators make guidance counsellors responsible for assisting students select their courses each year and for checking their time-tables.

#### (v) Frequency of Students' Visits

As the literature on the subject suggests, guidance can be an important factor in the motivation of gifted students to do their best at school, and can be an important means of assisting students locate themselves in course patterns and elective choices which fit their unique interests and capacities. Counsellors may be able to direct students into worthwhile extra-curricular activities which will aid their best development, socially and emotionally as well as intellectually.

One of the most productive devices guidance officials have at their disposal in the guidance of gifted students is the interview. In an attempt to discover to what extent the gifted visited counsellors for interviews during the past school year, the investigator asked, "How many visits have you made to the guidance department this year?" One hundred seven students out of one hundred nine responded. The average number of visits is 1.64. The S.D. is 1.26. The large S.D. indicates that the number of visits each student made varied widely. Ten students did not pay any visits to counsellors. One student made ten calls.





(vi) The Guidance Departments' Influence on the Course Choices and Extracurricular Choices of Students

In an attempt to discover the role played by guidance counsellors in helping gifted students decide on the courses they will, or will not take, and the extracurricular activities in which they will, or will not participate, the investigator asked, "At any time during your enrollment at this school has the guidance department helped you decide to take a course? to not take a course? Has the guidance department helped you decide to participate in an extracurricular activity? not to participate? Table IV shows that three students out of ten claimed assistance from guidance counsellors in deciding to register in courses; one out of ten was assisted in deciding to not register in courses; Thirteen per cent were helped by guidance officials to decide to take part in one or another extracurricular activities; three per cent were assisted in making decisions not to participate in extracurricular activities of one kind or another.

From what the selected students report it seems apparent that guidance counsellors have little to do with the course choices of gifted students and the extracurricular activities in which they do and do not participate. It must be remembered that perhaps the schools' policies concerning course choices in the matriculation are so tightly articulated that little room is left for students' free choices. This much does seem clear from the students' responses: guidance counsellors play a very limited role in the choice of extracurricular activities by the selected group of students. The students make their own choices, on the whole,



as to whether they shall or shall not participate, and in which activities they will participate.

TABLE IV  
THE EXTENT TO WHICH GUIDANCE DEPARTMENTS IN ALBERTA COMPOSITE  
HIGH SCHOOLS INFLUENCE THE COURSE AND EXTRACURRICULAR CHOICES  
OF A SELECTED GROUP OF STUDENTS  
IN GRADE TWELVE

School	Influenced to take a course		Influenced not to take a course		Influenced to participate in an extracurr. activity		Influenced to not participate in an extracurr. activity	
	Number	%	Number	%	Number	%	Number	%
100	3/11	27	0/11	0	2/11	18	0/11	0
200	2/12	17	1/12	9	3/12	25	1/17	9
300	4/20	20	1/20	5	2/20	10	0/20	0
400	10/16	63	3/19	16	2/19	11	0/19	0
500	10/18	56	4/18	22	0/18	0	2/18	11
600	0/12	0	0/12	0	3/12	25	0/12	0
700	1/7	14	0/7	0	1/7	14	0/7	0
800	3/10	30	1/10	10	1/10	10	0/10	0
Total	33/106	31	10/106	9	14/109	13	3/108	3

(vii) Teachers' Opinions Concerning the Adequacy of Guidance  
For a Selected Group of Grade XII Students

The teachers of the selected group were asked; "Are you satisfied that the guidance department of this school is adequately doing all that



it might reasonably be expected to do in its work with the gifted group of students?" Table V shows that seventy-six out of one hundred twenty-seven teachers responded to this question. Of the group of seventy-six, fifty-four per cent said that guidance is adequate or more than adequate; forty-six per cent said that it is less than adequate or they are undecided.

TABLE V

OPINIONS OF TEACHERS CONCERNING THE ADEQUACY OF THE  
COMPOSITE HIGH SCHOOLS' GUIDANCE DEPARTMENTS  
IN MEETING THE NEEDS OF SELECTED STUDENTS

Opinion Expressed	Schools								%
	100	200	300	400	500	600	700	800	
More than adequate	0/7	1/9	0/9	0/6	0/15	1/11	1/10	0/9	3/76 1%
Adequate	5/7	2/9	3/9	4/6	9/15	4/11	4/10	6/9	37/76 53%
Less than adequate	1/7	5/9	5/9	0/6	0/15	4/11	2/10	1/9	18/76 23%
Undecided	1/7	1/9	1/9	2/6	6/15	2/11	3/10	2/9	18/76 23%

The investigator asked the teachers to comment on their responses. Some typical replies were:

"The guidance department of necessity is spending a higher proportion of its time with the less able and low achieving students than with the gifted."

"The guidance department of this school is too small and thus has insufficient time to do much more than investigate problem students."

"I do not know what the guidance department is doing for gifted students."





"Every guidance officer is on the alert to detect and direct brilliant students but we have no special facilities for helping them."

"The facilities are adequate under existing circumstances."

From the data, more than half the teachers are satisfied that guidance facilities are adequate under existing circumstances while approximately one-fifth believe them to be inadequate.

(b) Rewards

One of the means of motivating gifted students to develop their potential is for secondary schools to offer rewards for worthy performance. With this in mind the investigator asked the principals of the composite high schools for information concerning the non-monetary and monetary rewards available for worthy students at their respective schools.

(i) Non-monetary Rewards

School 100 On an 'Awards Night' held annually, school 100 presents honours awards to those students making an eighty per cent average or better on their Christmas and Easter examinations. Students in Grades X, XI, and XII are eligible to win such awards. As well as the academic (honours) awards, students are also eligible under certain conditions of performance to win athletic and citizenship awards.

School 200 At the end of the school year all students who earned an eighty per cent average or better on their Christmas and Easter examinations are awarded an academic pin. On an 'Awards Night' each year the academic awards, athletic and citizenship awards are presented to worthy students. The feature presentation of the evening is that of the academic awards. This is a conscious effort by the administration of the school to increase the prestige rating of successful academic students.



School 300 At this school there is a trophy awarded each year to the Grade XII student holding the highest average based on his year's work. Honours pins are given to students in Grades X, XI, and XII who have earned an eighty per cent average or better through the school year. In addition, letters, athletic crests, and citizenship awards are made to worthy students.

School 400 This school has an Honours Club. Membership in the club is signified by a gold pin won on the basis of high achievement in academic work. In addition, students may win an academic scroll and have their names placed on an academic honours roll if their average standing for the year is seventy-five per cent or better. Students may also be named to a general proficiency honour roll determined on the basis of academic standing, citizenship qualities, and participation in extracurricular activities.

School 500 This school has a permanent honour roll for high achieving Grade XII students. In addition the central office prints an honours list following each examination period during the school year. To be named to the honour roll and honours lists a student must earn four H's and two A's and have an over-all average of eighty per cent or better. On an annual 'Awards Night' letters are presented to students for academic accomplishments, for athletic prowess and for outstanding participation in extracurricular activities.

School 600 An honours pin is awarded the student in each grade with the highest academic average at the end of each school year. The Students' Union provides citizenship crests for leading 'all-round' students in Grades X and XI. Crests are presented to students in all three grades if they have earned an average of seventy-five per cent or better on their year's work.



School 700 This school has an annual 'Awards Day'. Outstanding participants in extracurricular activities are recognized with letters and crests. There are plaques and trophies presented to winning athletic teams. The school board provides jackets and crests to students who were outstanding in athletic competition, publications, and non-athletic clubs. There are no academic awards made to outstanding academic students.

School 800 The ten top students in each grade are annually awarded pins on the basis of achievement in academic subjects, in citizenship and in participation in extracurricular activities.

Summary In seven out of eight schools awards are annually made to those students who have proven themselves high academic achievers in Grades X, XI, and XII. In all eight schools there are awards for students proving themselves worthy of high achievement in extracurricular activities.

(ii) Monetary Rewards

There are at least twenty Provincial scholarships available to worthy students in Grade XII. They are tenable at the University of Alberta. There are at least six scholarships available to Grade XII students of Alberta high schools and tenable at Canadian and American Universities other than the University of Alberta. Five of the eight high schools have lists of scholarships and monetary prizes available to only their own students at the respective schools. At School 400 there are thirteen awards in addition to the provincial and national scholarships. These range in value from ten dollars to one hundred dollars. At School 500 there are at least seven awards made to worthy students in addition to those offered provincially and nationally. They range from twenty-five dollars to two hundred fifty dollars. Similarly at School 600 there are at least fourteen scholarships and prizes locally awarded ranging in value





from twenty-five dollars to one hundred twenty-five dollars. At School 700 there are approximately twenty scholarships and prizes available for worthy students. Their value ranges from twenty-five dollars to three hundred dollars. At School 800 there are at least six scholarships awarded annually in addition to the provincial and national scholarships to students in Grade XII. These range in value from twenty-five dollars to three hundred dollars.

Summary There are national, provincial and local scholarships available at all the composite high schools at least to Grade XII students who are able to meet the requirements. Five of the eight schools provide monetary rewards throughout the three high school grades. The national scholarships are tenable at both Canadian and American Universities. The provincial ones are outlined in the University of Alberta calendar. Those schools offering local monetary rewards print their own publicity and the information is available from the guidance officials at the respective schools.

#### (c) Providing Community Contacts

Four of the eight schools provide rather extensive opportunities for students to meet and hear community individuals speaking on vocations on special days each year called 'Career Days'. For example, at School 100 there are between forty and fifty speakers on Career Day, each one speaking on a particular vocation. Students are able to take in any three of the speakers they wish.

A fifth school, School 200, has a list of individuals and firms who are willing to come to the school to meet students interested in a particular vocation. However, the principal made it clear that very little use was actually made of the list.

At Schools 400 and 500, speakers are brought in on certain occasions other than Career Day. For example, speakers have been invited to speak at

The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (1) for arbitrary values of the parameters  $\alpha$  and  $\beta$ . It is shown that the system has solutions for all values of the parameters  $\alpha$  and  $\beta$  if the function  $f(x)$  is continuous and has a bounded derivative. In the case of discontinuous functions  $f(x)$  the existence of solutions is not guaranteed. The second part of the paper is devoted to the study of the properties of the solutions of the system (1) for arbitrary values of the parameters  $\alpha$  and  $\beta$ . It is shown that the solutions of the system (1) are unique and depend continuously on the parameters  $\alpha$  and  $\beta$ . The third part of the paper is devoted to the study of the properties of the solutions of the system (1) for arbitrary values of the parameters  $\alpha$  and  $\beta$ . It is shown that the solutions of the system (1) are unique and depend continuously on the parameters  $\alpha$  and  $\beta$ .

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noon-hour student assemblies. One of the principals mentioned the kinds of speakers, among others, that visit the schools: a drafting lecturer, an oilman, a representative of the police department, and an artist.

School 800 has connexions with interested community individuals in a local band, the Little Symphony, an Art Society and a Drama Society.

Summary Only two schools, out of eight, consistently provide gifted students, along with the rest of the student body, a chance to meet community individuals that may serve to motivate them. Four schools out of eight bring community individuals into the schools on 'Career Day' in an attempt to motivate students to make wise vocational choices.

#### (d) Try Out Opportunities (Extracurricular Activities)

The investigator was supplied with a list of the various extracurricular activities offered at each of the eight composite high schools. Table VI shows that across the eight schools there were 48 activities provided as opportunities in which the selected students could 'tryout' their interests and abilities. These activities are in addition to the administrative positions available on the students' councils and on publications and graduation executives in each of the eight schools.

One school offers as many as 28 extracurricular activities. One school offers as few as 15. Looking at the picture as a whole, 8 schools provide opportunities for the development of interests and abilities in 165 clubs and associations and athletic activities. The average number offered per school is approximately 21. The most commonly offered activities are athletics, such as basketball, football, track and field and badminton. The least commonly offered activities are academic and recreational activities such as a French club, a science club, a school orchestra, a mixed chorus or



a drama club.

The picture as a whole may appear to be relatively good. A closer examination shows that some schools do very little with regard to providing try-out opportunities for the gifted in the fine arts and academic areas. For example, one school has two academic clubs, both available to boys only. Another has no recreational clubs whatsoever (e.g.---stamp club, glee club, photography club.)

TABLE VI

EXTRACURRICULAR ACTIVITIES AVAILABLE TO SELECTED STUDENTS IN ALBERTA  
COMPOSITE HIGH SCHOOLS <sup>1</sup>

Kinds of Activities	Schools								
	100	200	300	400	500	600	700	800	Total
<b>Interschool Athletic</b>									
Boys' and Girls' basketball....	1	1	1	1	1	1	1	1	8
Boys' and Girls' swimming.....	1	1	0	0	0	0	0	0	2
Boys' and Girls' track and field.....	0	1	1	1	1	1	1	1	7
Boys' and Girls' volleyball....	1	1	1	1	0	0	0	0	4
Boys' curling.....	0	0	1	0	0	1	1	0	3
Girls' fastball.....	0	0	0	0	0	1	0	0	1
Boys' football.....	1	1	1	1	1	1	1	1	8
<b>Intramural Athletic</b>									
Boys' and Girls' basketball....	1	1	1	1	1	1	1	0	7
Boys' and Girls' fastball.....	0	0	1	0	0	1	0	0	2
Boys' and Girls' track and field.....	1	1	1	1	1	1	1	1	8
Boys' and Girls' volleyball....	0	0	1	0	0	0	0	0	1
Mixed volleyball.....	0	1	0	1	0	0	1	1	4
Mixed fastball.....	0	0	0	1	0	0	0	0	1
<b>Athletic Clubs</b>									
Archery.....	1	1	0	0	0	0	0	0	2
Badminton.....	1	1	1	1	1	1	1	1	8
Booster.....	0	1	0	1	1	0	0	0	3





TABLE VI CONTINUED

Kinds of Activities	Schools								
	100	200	300	400	500	600	700	800	Total
Bowling.....	0	1	0	0	1	1	1	1	5
Cheerleaders.....	1	1	1	1	1	1	1	1	8
Curling.....	1	1	1	1	1	1	1	1	8
Golf.....	0	1	0	1	0	0	0	0	2
Majorettes.....	0	0	0	0	1	0	0	0	1
Rifle.....	1	0	0	0	1	0	0	0	2
Swimming.....	0	1	1	0	0	0	0	0	2
Table-Tennis.....	0	1	1	0	0	0	0	1	3
Tumbling.....	1	1	0	1	1	0	0	1	5
Wrestling.....	0	0	0	0	1	0	0	1	2
Non-Athletic Clubs									
Academic									
Art.....	0	0	1	0	0	0	0	0	1
Drama.....	0	0	1	1	0	0	0	0	2
Electronics.....	0	1	1	0	1	0	1	0	4
French.....	0	0	0	0	1	1	0	0	2
Geology.....	0	0	0	0	0	0	1	0	1
Honours.....	0	0	0	1	0	0	0	0	1
Literary.....	0	0	1	0	0	0	0	0	1
LLL (Let's Learn a Little).....	0	0	0	0	0	0	0	1	1
Science.....	1	1	0	1	0	0	0	0	3
Debating.....	0	1	0	0	0	0	0	0	1
Service									
Hi-Y.....	0	0	0	1	1	0	0	0	2
Inter-School Christian Fellowship.....	1	1	1	1	1	1	0	1	7
Junior Red Cross.....	0	1	1	1	1	1	1	1	7
Library.....	1	0	0	0	0	0	0	0	1
United Nations.....	1	0	0	0	0	0	1	1	3
Y-Teens.....	0	0	0	1	1	0	0	0	2
Recreational									
Chess and Checkers.....	0	1	1	1	0	0	0	1	4
Dance.....	0	0	0	0	0	0	0	0	0
Glee.....	1	1	1	0	1	0	1	0	5
Mixed Chorus.....	0	0	0	0	1	0	0	0	1
Orchestra.....	0	0	1	0	0	0	1	0	2
Photography.....	1	1	1	0	1	0	0	0	4
Modelling.....	0	1	1	0	0	0	0	0	2
Stamp.....	0	1	0	0	0	0	0	0	1
Total.....	18	28	25	22	23	15	17	17	

i 1 means the activity is carried on in a particular school; 0 means the activity is not carried on in a particular school



## (3) Outcomes of Current Composite High School Practice

## (i) Subject Likes and Dislikes

A knowledge of the subjects most liked and least liked by the students selected and the reasons for their feelings may throw some light on the factors involved in the motivation of gifted students in secondary school academic subjects. With this in mind the selected students were asked, "What subjects have you liked most during your high school career? Why?" and, "What subjects have you liked least? Why?" In order to get at the students' most immediate experience the investigator decided to use only those responses dealing with Grade XII subjects.

Table VII shows that subject preferences in descending order of preference were mathematics, biology, chemistry, physics, social studies, English, French, Latin. The rank order of their subject dislikes were Latin, social studies, English, French, physics mathematics, chemistry, and biology.

TABLE VII

LIKES AND DISLIKES OF A SELECTED GROUP OF GRADE XII  
STUDENTS OF THIRD YEAR HIGH SCHOOL MATRICULATION  
SUBJECTS IN ALBERTA COMPOSITE HIGH SCHOOLS <sup>i</sup>

Subject	Like			Dislike			Ratio	
	Number	Per cent	Rank	Number	Per cent	Rank	Like:	Dislike
Mathematics	72/108	67	1	13/108	12	6	5.5:1.0	
Biology	15/33	45	2	0/33	0	8		
Chemistry	46/106	43	3	9/106	8	7	5.1:1.0	
Physics	35/85	41	4	11/85	13	5	3.2:1.0	
Social studies	29/109	27	5	41/109	38	2	0.7:1.0	



TABLE VII CONTINUED

Subject	Like			Dislike			Ratio	
	Number	Per cent	Rank	Number	Per cent	Rank	Like:	Dislike
English	21/109	20	6	39/109	36	3	0.1:1.0	
French	13/83	16	7	26/83	31	4	0.5:1.0	
Latin	0/29	0	8	15/29	52	1		

<sup>i</sup> The numerator in each fraction is the number of students expressing 'like' or 'dislike'; the denominator in each fraction is the number of the selected students enrolled in the course.

#### Why do students like or dislike a particular subject?

Table VIII shows that the main reason for liking a subject according to the selected group is that it is interesting. That the subject "comes easy" is the second most important reason; thirdly, students like the teacher and his subject presentation and so like the subject; fourthly, a subject is liked because it is a challenge to the capacities of the students. The main reason the selected students dislike a subject is because it is uninteresting; secondly, they say they dislike a subject because they lack the ability to be successful; thirdly, the subject, as far as they can see, is useless; and





fourthly, they dislike the teacher and his approach and so dislike the subject.

TABLE VIII

REASONS GIVEN BY A SELECTED GROUP OF GRADE XII  
STUDENTS IN ALBERTA COMPOSITE HIGH SCHOOLS FOR  
LIKING AND DISLIKING MATRICULATION SUBJECTS

Likes			Dislikes		
Reason	Number of students	Per cent	Reason	Number of students	Per cent
Interesting	67	63	Uninteresting	50	47
Comes easy	45	42	Lack of ability	27	25
Teacher	21	20	Useless	22	21
Challenging	20	19	Teacher	19	18
Useful	12	11	Too vague	13	12
Logical	9	8	Too much memorywork	7	7
Not sheer memorywork	3	3	Too much effort	7	7
No homework	3	3	No challenge	3	3
			Poor texts	2	2

In commenting on these findings it is important to recognize that authorities in general agree that if a subject is interesting to a student who has high intellectual endowment, or if it is uninteresting to him, the teacher is to be held responsible as perhaps the key factor in the situation. When a student is presumed to be gifted intellectually and does not like a



subject and is not doing well in the subject, it is reasonable to expect that some non-intellectual factor is interfering to prevent the students from being interested. The non-intellectual factor may be the teacher.

Two out of three of the selected group like mathematics because it is interesting and five out of ten dislike Latin because it is uninteresting. It may be that the teachers in mathematics and Latin are the most important factors determining the students' likes and dislikes. This is a question that needs further investigation. What factors are inherent in the mathematics - science courses, that cause students to like them? What are the factors in the social studies - languages pattern that cause students to dislike them?

Following up this interesting question of the teacher's role in motivating students, the investigator asked the students, "If you had the responsibility of selecting your teachers what are the three characteristics you would most want them to possess?" One hundred nine students (100 per cent) responded. From their replies the investigator set up seven categories. The selected students want teachers with the following characteristics in rank order:

1. Friendly understanding	61 per cent
2. Knowledge of subject	50 per cent
3. Teaching ability	48 per cent
4. Ability to discipline	31 per cent
5. Sense of humour	23 per cent
6. Clarity of speech	18 per cent
7. Patience	14 per cent

The selected students want teachers who understand them and their problems and who are their friends. They expect teachers to know what they are talking about and to know more than their students about their (the teachers') subjects. They want teachers who have the ability to get ideas and concepts across to those students who have the ability to grasp them. They



want teachers who are able to control classes and provide an organization that insures well-mannered and respectful students. They want teachers that are willing to smile and have the world smile with them because they have a sense of humour. They want teachers that speak loudly enough to be heard and enunciate clearly enough to be understood, and they want teachers who will bear with them, to some degree at least, as they attempt to learn and live with others in the classroom situation.

#### (ii) Time Spent On School Studies Outside of School Hours

In attempting to determine the extent to which gifted students in Alberta composite high schools are motivated to do well in academic subjects, the investigator believed it might prove helpful to find out, even roughly, the number of hours the selected students spend on out of school studies. The following question was put to the students: "About how many hours a week (outside of school hours) do you spend on school studies?" One hundred six students replied. The mean number of hours reported was 10.14 per week. The S.D. was 5.18.. This suggests that probably two out of three students are spending from five hours per week to fifteen and a half hours per week on out-of-school studies.

As an interesting comparison, Huston reports that the average time spent by a group of forty-two first year pharmacy students at the University of Alberta in study outside of scheduled classes for the entire semester was twenty hours per week. (160)

#### (iii) Participation In Extracurricular Activities

The investigator attempted to get information concerning the degree of gifted student involvement in the extracurricular activities of their respective schools.

Table IX shows that approximately four out of ten of the



The first part of the paper is devoted to a general discussion of the problem. It is shown that the problem is of great importance in the theory of the structure of the atom. The second part is devoted to a detailed analysis of the problem. It is shown that the problem is of great importance in the theory of the structure of the atom. The third part is devoted to a detailed analysis of the problem. It is shown that the problem is of great importance in the theory of the structure of the atom.

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selected students participate in athletic activities. The ratio of the number of activities participated in to the number of selected students per year in high school gives a picture of the extent of participation of the total group. If the number of activities participated in by the 43 students were spread over the total group of 109 students and divided by three years, the ratio becomes .38. This means that one student took part in one athletic activity one year out of three. Of course, the actual picture is that 43 out of 109 students took part in many more activities than .38 per year. A few took part in two or three athletic activities each of the three years they were in high school, while more than half the students took part in none.

Table IX shows that approximately 6 out of every ten of the selected students hold executive positions in school athletic and non-athletic clubs, the students' union, on publication boards and graduation class executives. If the number of positions held by seventy executive-holding students is spread over the total group of 109 students and the result is divided by three years, each student holds .52 positions per year. Thus, in three years each student holds one and a half executive positions or about one position every two years. Again, it must be recognized that 64 per cent of the selected group hold many more than .52 positions per year. Some of them hold 3 or 4 positions each year they spend in high school while 36 per cent hold none.

With regard to the participation of selected group members in non-athletic clubs such as a photography club, a science club, or a French Club, table IX shows that 35 per cent of the group belong to one or more of such clubs. If the total number of memberships held by 35 per cent of the group is spread over the total group of 109 students and divided by three years, the ratio of activities per student per year comes to .22. This means, for the group as a

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whole, if a student remains in high school for 5 years he can be expected to belong to one non-athletic club during one of the five years. The actual picture is one of a few students taking part in one or more activities during two or three years of their high school career, while the great majority of the selected group belong to no non-athletic clubs.

TABLE IX

THE PARTICIPATION IN EXTRACURRICULAR ACTIVITIES OF A SELECTED GROUP  
OF GRADE XII STUDENTS IN ALBERTA COMPOSITE HIGH SCHOOLS

Activity	Number of students	Per cent	N 109 Ratio (per student per year)
Participation in Athletic Activities	43	40	124/109/3 .38
Participation in Executive Offices	70	64	169/109/3 .52
Participation in Non-Athletic Clubs	38	35	73/109/3 .22

Summary Because more students hold executive positions than belong to either athletic activities or non-athletic activities, one may surmise that the students who take part in athletic activities do not, in general, belong to non-athletic activities. Probably then, the total number of students who are involved in athletic and non-athletic activities is somewhere near 60 per cent. It appears that most of the students who participate in extracurricular activities hold executive or leadership positions such as team captain, secretary, or president, etcetera.

The majority of the members of the selected group belong to at least one extracurricular activity during one of their three high school years.



Fewer students are involved in non-athletic activities such as science clubs and school orchestras than belong to athletic activities such as badminton clubs or basketball teams.

(iv) Awards Won By Members of the Selected Group

The students of the selected group were asked to list any scholarship prize or honour they held during their high school career. Since the time during which this data was gathered came before the end of the school year the data is not complete as to the total number of academic awards earned over the three year period by the selected group. Some of the members of the group undoubtedly won such awards upon graduation in June of 1958.

The investigator was able to find out how many students won academic awards in Grades X and XI and the number of awards they won. Forty-five per cent of the group (49/109) won a total of eighty-two academic awards over a two year period. Each of the forty-nine students won 1.67 awards in two years. When the total number of academic awards won (82) is spread over the total group of one hundred nine students and this is divided by two years (Grades X and XI), the ratio of awards per selected student per year becomes .38. On this basis, each of the selected students can be expected to win one academic award during his high school career (3 years times .38)

The investigator did not receive sufficient evidence to enable the same observations to be made concerning athletic awards and citizenship awards.

(v) Liking For School

Barbe reports that gifted students, in spite of the gross neglect of their educational needs in schools generally, in the vast majority "like school and prefer the hard subjects to the easy ones." (161)



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If students are highly motivated to be successful at school and have the capacity to be successful in many respects, in all probability they will like school. Thus, if the composite high schools are adequately meeting the needs of this selected group of students it might be expected that the students will have a rather strong liking for school.

The investigator tried to get an expression of the degree of liking for school of the selected students. Table X shows that approximately two students out of ten have a strong liking for school; six out of ten have a fairly strong liking; and two out of ten have a slight liking or a positive dislike.

TABLE X

THE DEGREE OF LIKING FOR SCHOOL OF A SELECTED GROUP OF GRADE XII STUDENTS IN ALBERTA COMPOSITE HIGH SCHOOLS

Degree of liking	Number of students	Per cent
Very Strong.....	19/109	17
Fairly Strong.....	70/109	64
Slight Liking.....	18/109	17
Positive Dislike.....	2/109	2

The selected students were asked, "If school has been disliked at any time, why?" Forty-nine students out of one hundred nine indicated that at one time or another they have disliked school. Approximately one student out of three has disliked school because of a teacher. The second most frequent reason given was that school is uninteresting (approximately three out of ten students). Other reasons given for disliking school at one time or another were



home work assignments, particular courses, the anonymity of students, and the strictness of administrators.

(vi) Overwork and Underwork

"If students feel stifled in the classroom, if they feel restricted by strict discipline, if they are not sufficiently stimulated, if if they feel they are being overworked, the teacher in all probability is not providing for their needs." (162) In the light of this statement the investigator attempted to discover the extent to which the selected group felt restricted by their respective schools and as well, the students' opinions concerning whether or not the schools were underworking them and overworking them.

Students were asked, "Do you feel restricted by the school in attempts to follow any subject-matter or extracurricular interests you may have?" Of the one hundred six students responding to the question, twenty-five per cent answered in the affirmative. The students were requested to explain their answer if it were 'yes'. Some typical explanations were: "I've been forced to take some useless courses"....."Much school work is uninteresting"..... "The courses I want are not offered"....."The discipline around here is too strict"....."There's too much homework".....and, "We're lost sheep here, there are just too many students."

Concerning overwork and underwork, the students were asked, "Do you feel the school is overworking you in classwork and extracurricular activities?" and "Do you feel the school is not working you hard enough in classwork and extracurricular activities?" Table XI shows that approximately one student out of ten felt overworked, whereas, approximately five out of ten



felt they were not worked hard enough.

TABLE XI

THE OPINIONS OF A SELECTED GROUP OF GRADE XII STUDENTS IN ALBERTA  
COMPOSITE HIGH SCHOOLS CONCERNING THE AMOUNT  
OF WORK THE SCHOOLS REQUIRE THEM TO DO

Amount of work	Reply	Number of students	Per cent
Overwork	Yes	11/106	10
	No	95/106	90
Underwork	Yes	48/98	49
	No	50/98	51

(vii) Subject Repeats

In how many instances did a selected student fail a subject in Grade X or XI? From the students' permanent records the following pertinent information was gathered:

Mathematics 20	4 students failed
Latin 20	3 students failed
French 20	2 students failed
Science 20	2 students failed
Mathematics 10	1 student failed
German 20	1 student failed
Music 20	1 student failed
	<u>14</u>

In not a single instance did a selected student have to repeat more than one subject. Therefore it can be said that approximately 12 per cent of the selected students failed one subject during their high school career.





Thirteen of the fourteen failures occurred in Grade XI. In spite of the failures of some of the students, only one student will not have the required number of credits to graduate from high school after three years. He does not have the necessary 100 credits. The remainder of the students will receive the matriculation diploma if they successfully meet the final departmental examinations.

#### (viii) Further Education

Canadian studies show that probably not half of the gifted high school students who graduate from Grade XII go on to university. Passow claims, "The lack of desire for college training is second only to inadequate finances as a reason for by-passing college." (163)

Presumably, then, secondary schools are important factors in getting gifted students to want to go on to college. That is to say, the proper motivation of gifted students during their school career is likely to carry them on to college in the continued birth of their potential abilities and interests.

The selected group of Grade XII students were asked, "Have you decided yet which life vocation you wish to follow?" Eighty-six of one hundred nine students answered in the affirmative and fourteen per cent answered in the negative. The students answering 'yes' were requested to name the occupations they plan to enter. Eighty-five of the ninety-four students planning who have made their vocational choices plan to carry on with further education at institutions of higher learning. Thus, seventy-

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eight per cent of the total group plan to go on for higher education. This is shown in table XII.

TABLE XII

PER CENT OF SELECTED GRADE XII STUDENTS IN ALBERTA COMPOSITE HIGH SCHOOLS INDICATING WHETHER OR NOT THEY HAVE CHOSEN THEIR LIFE VOCATION

Choice	Number of students	Per cent
Yes	94/109	86
No	15/109	14
Further Education	85/94 (85/109)	91 78) <sup>i</sup>
Other	9/94	9

<sup>i</sup> The percentage of selected students planning to carry on with their formal education at institutions of higher learning.

In terms of the literature dealing with the number of gifted students who go on for further education, this data is rather remarkable. From Alberta Composite high schools approximately eight out of ten gifted students are actively planning to continue with their formal education. Whether or not they do remains to be seen. If they do it will mean that nearly twice as many from the composite high schools go on as did such students in Jackson's Toronto study. (164)

More precisely, what are the vocational choices of the selected

( )

( ) .

students? Table XIII shows that engineering, teaching, and nursing are the most popular choices.

In order to get some idea of the experiences that helped the gifted students make up their minds concerning whether or not they would go on to higher education and what their vocational choices would be, the investigator asked, "Under what conditions did you make the choice (that is, what influences determined your decision?) In terms of the students' responses the following categories were set up, in rank order with respect to their frequency of appearance:

1. Subject matter	36 per cent
2. Closehand observation	35 per cent
3. Family	34 per cent
4. Reading	28 per cent
5. Interests and ability	24 per cent
6. Teachers	18 per cent
7. Friends	16 per cent
8. Guidance department	10 per cent

TABLE XIII

THE VOCATIONAL CHOICES INVOLVING FURTHER EDUCATION OF A SELECTED GROUP OF GRADE XII STUDENTS IN ALBERTA COMPOSITE HIGH SCHOOLS

Vocational choice	Number of students	Per cent
Engineering	26/85	31
Teaching	10/85	12
Nursing	8/85	8
Accounting	6/85	7
Medicine	5/85	6
Chemistry	4/85	5
Laboratory technician	3/85	4
Business executive	2/85	2
Clergy	2/85	2
Physics	2/85	2
Journalism	2/85	2
Social Work	2/85	2





TABLE XIII CONTINUED

Vocational choice	Number of students	Per cent
Pharmacy	1/85	1
Home Economics	1/85	1
Writing	1/85	1
Psychology	1/85	1
Law	1/85	1
Design	1/85	1
X-ray technician	1/85	1
Mathematics	1/85	1
Physiotherapy	1/85	1
Bacteriology	1/85	1
A.G.T. technician	1/85	1
Geology	1/85	1
Science	1/85	1
	85/85	97

An impression the investigator gained while visiting the composite high schools was that the respective guidance departments undertook as a major aim to influence gifted students to carry on their formal education at institutions of higher learning. It appears that guidance officials have very little influence on the vocational choices of the selected students.

(4) Summary

Members of the selected group visit guidance officials for an interview at least once per year in addition to a visit for the purpose of checking their time-tables. The interview centers around educational and vocational guidance. Very little guidance of a 'personal' nature is provided.



The guidance departments' influence on the course choices and extracurricular participation of the selected students appears to be limited from the viewpoint of the students.

The selected students are informed of their potential and urged to work and achieve academically on a par with their ability levels. In some of the schools at least, under-achieving students receive special guidance.

The composite high schools appear to provide a wide range of opportunities for students to tryout their interests and abilities in extracurricular activities. More often the tryout activities were athletic in nature rather than academic.

The majority of the schools provide motivation by means of scholarships, bursaries, and awards for outstanding achievement in extracurricular activities.

Most of the schools provide limited contacts with community individuals. Usually such contacts occur on "Career Day" with the aim being to assist students to make wise vocational choices.

The success of the composite schools in motivating the selected students is made somewhat clearer by the following findings:

(a) Students tend to dislike languages and social studies and to like mathematics and science subjects. They prefer interesting subjects and dislike uninteresting subjects. Students are more likely to find subjects interesting if the teachers are friendly and understanding, know their subject matter, and have the ability to get ideas 'across' to students;

(b) On the average, the selected students spend about 2 hours on school studies each school day outside of school hours;



(c) Less than half the group win awards for outstanding achievement in either academic or extracurricular activities. The group as a whole can be expected to win one award in three years;

(d) Most of the selected students participate in either athletic or non-athletic extracurricular activities. The majority of participants are involved in activities of an athletic nature;

(e) Very few of the selected group experience failure during their high school career. Those that do fail usually fail in Grade XI, and fail only in one subject;

(f) Very few of the selected students feel overworked by the composite high schools; approximately half the group feel underworked;

(g) The vast majority of the group like school. Relatively few have a strong liking. Those who dislike school at any time do so ordinarily because of teachers or because school is boring and unchallenging;

(h) At least three-quarters of the group are actively planning to go on for further education to universities, colleges and other places of higher learning.





## FOOTNOTES TO CHAPTER VI

(158) R. F. DeHaan and R. J. Havighurst, Educating Gifted Children (Chicago: The University of Chicago Press, 1957), chap. ix.

(159) Ibid., p. 127.

(160) Huston, M. J. "A Survey of Study Habits of First Year Pharmacy Students", American Journal of Pharmaceutical Education, 12(July, 1948), pp. 434-441.

(161) Barbe, W. B. "Are Gifted Children Being Adequately Provided For?" Educational Administration and Supervision, 40(November, 1954), p. 406.

(162) Passow and others, Planning For Talented Youth, Talented Youth Project, Horace Mann-Lincoln Institute of School Experimentation, Publication 1 (New York: Bureau of Publications, Teachers College, Columbia University, 1955), p. 57.

(163) A. H. Passow, "The Comprehensive High School and Gifted Youth", Teachers College Record, 58(December, 1956), p. 147.

(164) R. W. Jackson, "Guilty of Brain Slaughter?" Education Forum, 6(December, 1956), p.

PROBLEMS OF THE WEEK

1. Let  $f(x) = x^2 + 2x + 1$ . Find  $f(3)$ .
2. Simplify  $(x^2 + 3x + 2)(x - 1)$ .
3. Solve the system of equations:  
$$\begin{cases} x + y = 5 \\ x - y = 1 \end{cases}$$
4. Find the area of a rectangle with length 8 and width 5.
5. Simplify  $\frac{x^2 - 4}{x^2 + 2x - 8}$ .
6. Find the derivative of  $y = x^3 + 2x^2 - 5x + 7$ .
7. Solve for  $x$  in  $2x + 3 = 15$ .
8. Find the volume of a cylinder with radius 3 and height 10.
9. Simplify  $\sqrt{16x^4}$ .
10. Find the slope of the line passing through  $(1, 2)$  and  $(3, 6)$ .

## CHAPTER VII

## DEVELOPING GIFTEDNESS: ENRICHMENT

## 1. The Criterion

A good secondary school programme for the best development of gifted youth recognizes that they need a curriculum which offers something more than they would receive in the programme offered average students in regular classes. Gifted students rise to the challenge of a curriculum which requires high ability and demands high achievement, and calls forth their very best efforts.

Such a curriculum makes it possible for gifted students to range more widely and delve more deeply into their courses of study and their extracurricular activities than would be the case if they are involved in programs provided for average students. Such a curriculum makes it possible for these students to make extensive use of the library and laboratory facilities; to choose courses that will interest and challenge them from a wide range of electives.

Teachers who enrich their offerings to suit gifted students will carry on classroom activities that involve procedures such as: small-group and individual research on the part of the students; seminar discussions on problems of general interest; more difficult assignments for gifted students than the average are required to do; widespread reading of a relatively difficult nature and reporting on the readings to class.

Administrators will provide the necessary materials and facilities for enrichment and will provide teachers with planning time and assistance as they aim to enrich the school experiences of gifted students in their charge.



## 2. Current Composite School Practice

### (a) From the Viewpoint of Administrators

The investigator tried to discover through composite high school principals, the extent to which they are providing opportunities for gifted students to experience enriched school provisions. The eight principals were asked, "Does this school enrich the curriculum for gifted students?" Under enrichment the writer includes the following: honour-type courses, general reading, hobbies and collections, dramatic activities, excursions to places of interest, community contacts with gifted citizens, special facilities, honours and extra courses, library and laboratory assistantships, student research, seminar work. What are the administrators doing in these areas to facilitate the enrichment of the curriculum of gifted students?

#### (i) Honour-Type Courses

Schools providing good programmes for gifted students often provide opportunities for them to register in honours classes. Such courses are open to those whose ability and achievement records show them to be well above average students.

In an attempt to discover whether Alberta composite high schools provide any such opportunities for superior students the principals of the schools were asked, "Are any courses available in this school which are restricted to students whose mental ability and/or achievement is above average?"

Before proceeding with the principals' answers it should be noted that Department of Education regulations establish prerequisite requirements for some high school courses. To a degree, then, such courses are limited to students showing at least some ability in the subjects. For example, students registering in French 20, German 20, or Latin 20 require a B standing in English



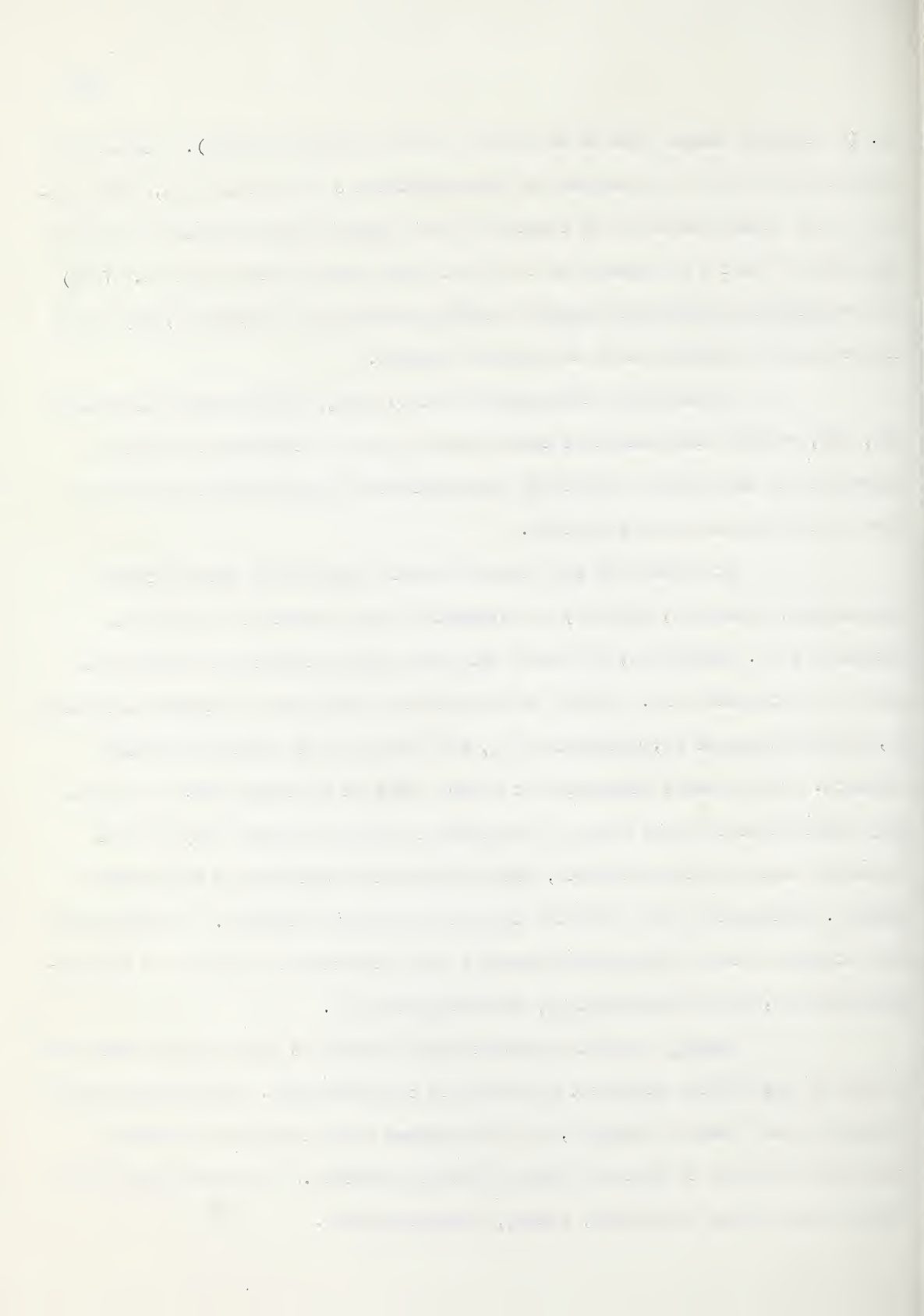


10. (B standing ranges from 50 to 64 per cent on a scale of marks). Concerning sequential electives the Handbook of the Department of Education says, "Instruction in the second course of an elective in any sequence may be taken by students who have at least a B standing in the first year course of the elective." (165) The Department of Education requires students enrolling in French 11, 21, and 31 to show special competence in the French language.

In answering the question put to them, the principals at Schools 100, 600, and 700 indicated that there were no special requirements limiting membership to any courses offered in the respective schools except those laid down by the Department of Education.

At School 200 only those students planning on later entering engineering, chemistry, physics, or mathematics were allowed to register in Mathematics 31. Similarly, at School 300 only gifted students were allowed to enroll in Mathematics 31. School 400 limited the membership in English Literature 21, English Language 21, Mathematics 31, and Biology 32 to superior academic students. The guidance department at School 500 made a serious effort to guide only those students whose Grade IX achievement records indicate they will be successful matriculation students, into matriculation mathematics and science courses. Mathematics 31 is limited to gifted Grade XII students. At School 800 only students showing considerable promise were permitted to register in English-Literature 21, English Language 21, and Mathematics 31.

Summary Alberta composite high schools do have classes restricted to more or less gifted students, according to the principals. Such classes may be referred to as 'honours classes', and they appear to be the kind of courses purposely developed to meet the needs of gifted students. The courses are to be found in the fields of English, French, and mathematics.



### (ii) Reading Facilities

Six of the eight schools have full-time librarians. Seven have space set aside in each as the school's library....in the form of actual library rooms. At the school without adequate library space there is, according to the principal, a movement afoot to get improved facilities. In every school the principals felt relatively certain that the students were receiving guidance in their reading from teachers and librarians.

### (iii) Stimulation of Hobbies and Collections

At School 600 nothing is being done to stimulate students' interests by means of the encouragement on the part of students to undertake hobbies and collections. At Schools 100, 300, 700, and 800 the principals said such activity on the part of the administration is very limited. At Schools 200, 400, and 500 the principals said there is a fair amount of this undertaken through clubs such as stamp clubs, science clubs and geology clubs. The administration in each of these schools actively supported such ventures.

### (iv) Drama Productions

At five of the eight schools, drama classes or drama clubs stage public performances at least once, and at one school twice, during the course of the school year. Within the schools for the student bodies there are numerous student performances which called for dramatic ability on the part of those involved in the activities.

At School 200 the Drama Club was disbanded because it narrowed the chances of students to participate in stage productions. At two of the schools the principals commented that producing and acting in plays is done to a very limited degree.

Let  $f(x)$  be a function defined on the interval  $[a, b]$ . Suppose that  $f(x)$  is continuous on  $[a, b]$  and that  $f'(x)$  exists on  $(a, b)$ . Then, the function  $f(x)$  is differentiable on  $(a, b)$  and its derivative is  $f'(x)$ . This is a fundamental theorem in calculus, known as the Mean Value Theorem. It states that if a function is continuous on a closed interval and differentiable on the open interval, then there exists at least one point  $c$  in the open interval such that the derivative at  $c$  is equal to the average rate of change of the function over the interval  $[a, b]$ .

Example 1: Find the derivative of  $f(x) = x^2 + 3x - 5$ .

Solution: We are given the function  $f(x) = x^2 + 3x - 5$ . To find the derivative, we use the power rule for differentiation. The power rule states that if  $f(x) = x^n$ , then  $f'(x) = nx^{n-1}$ . Applying this rule to each term in the function, we get:
 
$$f'(x) = \frac{d}{dx}(x^2 + 3x - 5) = \frac{d}{dx}(x^2) + \frac{d}{dx}(3x) - \frac{d}{dx}(5)$$

$$= 2x + 3 - 0 = 2x + 3$$
 Therefore, the derivative of  $f(x)$  is  $f'(x) = 2x + 3$ .

Example 2: Find the derivative of  $f(x) = \sin(x)$ .

Solution: We are given the function  $f(x) = \sin(x)$ . The derivative of the sine function is a standard result in calculus, which states that  $\frac{d}{dx} \sin(x) = \cos(x)$ . Therefore, the derivative of  $f(x)$  is  $f'(x) = \cos(x)$ .

These examples illustrate the application of the power rule and the derivative of the sine function. The power rule is a general formula for finding the derivative of a function of the form  $x^n$ , and the derivative of the sine function is a specific case of a more general result in trigonometric differentiation.

(v) Excursions to Places of Interest

At seven of the eight schools there is a degree of student travel to such places as business offices by commercial classes, to chemical and industrial plants by science classes, and to bakeries, mills, and restaurants by household science classes. One school reports having made it possible for students to visit a power plant and newspaper printing plants. Another reports having sent students to take part in a Citizenship Day at the local Court House. Another reports having sent students to visit hospitals and such like on Career Day.

(vi) Special Facilities For the Gifted

All eight principals said that laboratories and shops are open to interested students outside of class hours if such students have an interested teacher remain with them while they carry on their activities. In the majority of schools the students are free to use the commercial rooms, art rooms, music rooms and library facilities before and after school hours, or when regular classes are not using them, provided that the necessary arrangements are made with teachers and the administrative office.

Infrequent use is made of the laboratories and shops by individual students or small groups outside of class period for special studies according to one principal because teachers' time and interest are both limited.

At School 300 the Electricity Club is designed as a special project activity for interested students. At School 200 science and electricity classes have been known to remain after school to work in the laboratories and shops on small group projects.





(vii) Encouragement of the Gifted to Carry Extra Courses and Enroll In Honours Classes

Honours Classes - The administrators in the majority of schools encourage gifted students to register in courses especially designed to challenge them. Such courses are English Literature 21 and English Language 21, French 11, 21, and 31, Mathematics 31, and Biology 32. In three of the schools students who have high academic ability or who are high academic achievers are urged to take Latin and French concurrently in Grades XI and XII.

Extra Classes - In Alberta composite high schools an average of 33 1/3 credits each year of the three high school years will give the necessary one hundred credits required for matriculation. However, Department of Education regulations allow students to carry as many as forty credits a year. Thus, any credits over 33 1/3 each year may be considered as 'extra'.

The principal at School 100 said that Grade X students to the extent of 80 per cent carry approximately forty credits. In Grade XII they are limited to thirty-five credits. The spare period(s) they gain gives them time in school to study.

At School 200 the gifted are urged to carry one course in excess of the standard six courses in Grades XI and XII.

Similarly, the principal at School 300 believes that Grade XII matriculation students should be satisfied to carry six major courses and perhaps one other.

The Administrator at School 400 has on occasion in the past requested the Department of Education to allow a gifted student to carry Grade XI and XII courses concurrently.

School 500 requires gifted students to carry 38 credits in Grades



X and XI, and 35 to 40 credits in Grade XII. Exceptions are made for students carrying music outside of school or for students with physical handicaps.

(viii) Laboratory and Library Assistantships

In seven of the eight schools, students serve as assistants to the librarians of the respective schools. At School 100, students belong to a Librarians Club. They work in the library on a voluntary basis. At School 200, the students who assist in the library are presented with awards for their efforts on the school's annual Awards Night. At Schools 400, 500 and 600, students are paid a small sum to assist the librarian.

In not one school does the administration provide laboratory assistantships. The principals believe that only very seldom have teachers used students as laboratory assistants. In at least one school there are science teachers who allow students to act as demonstrators. In another, gifted students help the less able to complete their laboratory work.

(ix) Small Group Research and Seminar Work

None of the schools provide policy framework which requires this sort of programme planning on the part of teachers in their approach to gifted students. The principals at two of the schools said that to their knowledge nothing of this nature is occurring in their schools. The other six said that to a very limited extent it is being carried on in their respective schools. For example, at School 100 the Grade XI psychology students were assigned individual projects which were successfully completed on the whole. At School 200 small group research is carried on in the Science Club and Radio Club.



Summary Five of the eight schools have what might be called honour classes, reserved, in the main, for gifted students.

Each of the eight schools has a school library and, generally speaking, the facilities are relatively adequate with teachers and librarians providing at least some guidance in reading to gifted students.

In seven out of eight schools the stimulation by the administration of hobbies and collections occurs, but on the whole such stimulation is extremely limited.

In at least six of the schools opportunities are provided through drama classes or drama clubs for students to take part in producing and acting in plays.

Seven out of eight schools had classes visiting business offices, industrial plants, and so forth. This is not an extensive practice.

As has been pointed out in the section under motivation dealing with community contacts, five out of eight schools bring speakers to benefit the students on Career Day each year. Two schools bring in community speakers oftener than once a year; a third has connexions with community cultural groups.

Laboratories and shops, music rooms, art rooms, commercial rooms, and library facilities are available within limits outside regular school hours. If the facilities are unused, it is, according to the principals, for some reasons other than that the administration is unwilling to open them to interested students.

School authorities urge gifted students to register in those classes especially designed to challenge their interests and abilities. The extent of such classes is limited, being confined to English (creative writing), conversational French and French authors, and trigonometry, and in at least one





school, biology. Some students are urged to carry both Latin and French during high school.

Seven out of eight schools have students act as assistants to the librarian in their respective schools. The schools' use of gifted students as laboratory assistants is practically non-existent. Similarly, the participation of gifted students in small-group research and seminars is extremely limited.

Most of the efforts to provide these kinds of enrichment are carried on by school administrative authorities for the student body as a whole, with the gifted benefiting because they are members of the larger group.

#### (b) From the Teachers' Viewpoint

Following a definition of the concept of enrichment the teachers of the selected students were asked, "What efforts have you made during the past school year to enrich the curriculum for the gifted students taking your subject?" They were asked to indicate the subject taught if they do enrich offerings for the gifted, and also to briefly explain what they tried to do and whether or not it was successful. Thirteen enrichment activities were listed, any or all of which the teachers may have been practicing in their respective classrooms. Space was provided for them to include any enrichment activities they practiced which were not included in the list.

TableXIV shows that seventy-eight out of a possible one hundred twenty-seven teachers responded or approximately 61 per cent of the teachers of the gifted.

#### (i) Enrichment through guidance in general reading

Approximately three out of five teachers said they offer enrichment through guidance in general reading. The nature of such guidance



is made somewhat clearer from the remarks of the responding teachers. One teacher said, "I direct the students to interesting textbooks and library references, particularly when they are especially interested in specific topics." Another said, "In literature I have suggested top-quality books for free reading and have used level-of-taste ratings. In drama I have established a required reading list of plays. In both the above cases the efforts have been reasonably successful." A science teacher wrote, "Students have been directed to the Scientific American." Another wrote, "Books on chemistry, applied and pure, are supplied from the school library as well as my personal library to many of the students listed." A teacher of French and English wrote, "I have directed gifted students to more advanced books in English 30 -- e.g.-- Les Miserables, David Copperfield, and the works of Albert Schweitzer. In French I have provided them with French newspapers, magazines, and books not required on the course of studies." A mathematics teacher said, "I've had my students purchase an extra book on mathematics for general reading --- Mathematician's Delight."

(ii) Planning more difficult assignments for the gifted

Approximately two teachers out of five said they plan more difficult assignments for the gifted students in their classes. Typical examples of what they claim to be doing are quoted from their remarks:

A teacher of mathematics and science said, "Other books than the required text are used for assignments in mathematics for the bright; and challenging problems are given in science." A literature teacher wrote, "I assign bright students projects which require more than average ability." A physics teacher wrote, "In physics a few challenging problems are made up from time to time and are usually well received by two or three members of each



class." According to a social studies teacher, "Special sets of questions are given the more gifted." An English teacher said, "I require the gifted to read more of Shakespeare's plays than the one assigned by the Department (of Education)."

(iii) Encouraging individual research

Out of every three teachers of the selected group that responded to the questionnaire, approximately one claimed to have encouraged gifted students to undertake individual research. For examples of the sort of thing the teachers encourage, their remarks are quoted: A biology teacher said, "Members of the class are encouraged to do a dissection or any other study they wish to undertake in the laboratory out of school hours." A mathematics teacher said, "I encourage members of the class to subscribe to the Students' Journal In Mathematics and to send in solutions to the problems contained therein." A French teacher has arranged for her students to have pen-pals in France.

(iv) Using gifted students as assistants in laboratories, the library, etcetera

Approximately one teacher in four uses gifted students as assistants. One teacher reports, "I use students in the lab to prepare demonstrations." A drama teacher said, "I have used two outstanding drama students to direct plays." Another wrote, "I recommended students who could help in the library." "In Mathematics 31", wrote a teacher, "I have gifted students act as demonstrators of difficult questions."

(v) Encouraging students to participate in extracurricular activities

Approximately one teacher in five claimed to encourage gifted students to participate in extracurricular activities. An art teacher reported, "Posters, drawings, and crests are done by art students for clubs and the year-book. Such work is credited as extra art work for class purposes. Drawings for the yearbook become the main art project for interested students: Another teacher





said, "I encourage some of the better ones to join the Public Speaking and Debating Club." Another said, "I call the attention of students to writing and speaking competitions and offer some direction in preparing for these."

TABLE XIV

ENRICHMENT TECHNIQUES USED AND THE PERCENTAGE OF TEACHERS OF A  
SELECTED GROUP OF GRADE XII STUDENTS USING  
THEM IN ALBERTA COMPOSITE HIGH SCHOOLS

Enrichment Activity	Number of teachers	Per cent
Enrichment through guidance in general reading.....	49	63
Planning more difficult assignments.....	33	42
Encouraging individual research.....	26	33
Using gifted students as assistants in laboratories, libraries, etc.....	18	23
Encouraging participation in extracurricular activities.....	17	22
Encouraging the administration to provide special facilities for the gifted.....	16	20
Encouraging creative experiences.....	14	18
Other enrichment activities used but not listed above.	10	13
Stimulation of hobbies and collections.....	9	11
Making contacts with outstanding citizens of the comm- unity with interests similar to those of the gifted...	8	10
Encouraging the gifted to participate in community organizations.....	8	10
Organizing the products of enrichment activities as exhibitions.....	8	10
Making excursions to places of interest.....	5	6

(vi) Encouraging the administration to provide special facilities for the gifted

One out of five teachers claimed to be encouraging the administration officials in the respective schools to provide special facilities for gifted students. In the main such suggestions had to do with recommending



books for the school library. A French teacher, however, wrote that she asked for a tape recorder, recordings of French songs and readings, subscriptions to French newspapers and books for free reading. Another example of the kind of encouragement the responding teachers gave was the recommendation by a biology teacher for a new and better equipped biology laboratory.

(vii) Encouraging creative experiences

One out of five teachers of the selected group claimed to have encouraged gifted students to undertake creative experiences. For example, an art teacher reported, "I try to keep all art work creative." An English teacher wrote, "I attempt to give the gifted student a chance to do creative writing in connexion with the English program." A physics teacher provides opportunities for gifted students to improvise laboratory equipment. Another teacher stated, "In French I'm having a student write a simple play for performance later by his classmates." Another teacher said, "I encourage students to enter essay contests."

(viii) Making contacts with outstanding citizens  
of the community

Approximately one teacher in ten made contacts with citizens of the community who have interests similar to those of the gifted students in class. For example, one teacher brought in a guest speaker from a university drama department. A French teacher wrote, "Local French-speaking people are invited to assist in conversation groups at city-wide meetings of a students' French Club." A science teacher reported, "I have suggested that certain students contact specific persons."

(ix) Stimulation of hobbies and collections

One teacher out of ten claimed to have attempted to stimulate



gifted students to undertake hobbies and collections. The students of one teacher were encouraged to bring craftwork they may do at home to school. If students wished to learn a new craft the teacher attempted to find qualified instruction. The students of a biology teacher raised an ant colony, and of another collected plants and insects. A French teacher wrote, "The students have all made splendid scrap books on France and French Canada. Those of the good students are really astounding."

(x) Encouraging gifted students to participate in community organizations

Approximately ten per cent of the teachers of the selected group claimed to have encouraged them to take an active part in community organizations. One teacher wrote, "Meetings are advertised when brought to my attention." A drama teacher wrote, "I stimulate some outside work in drama and the gifted respond extremely well." A science teacher said, "Some science club members belong to the Royal Astronomical Society of which I am a member." Another teacher wrote, I've urged them to belong to the U. N. Club.

(xi) Organizing exhibitions of the products of enrichment activities

About ten per cent of the teachers said they displayed the products of enrichment activities. This sort of thing was done in science classes and in art.

(xii) Making excursions to places of interest

Five per cent of the teachers claimed to have made excursions to places of interest. A science teacher said, "We visited the Observatory." Another wrote, "We have visited science laboratories having to do with the oil industry." A third teacher said, "I have encouraged students to visit the





Art Museum and other art displays. I draw students' attention to the monthly exhibitions at the Art Museum."

(xiii) Organizing seminar projects for gifted class members

Five per cent of the teachers of the gifted claimed to have involved them in seminar projects. Only one teacher commented. He said, "I attempted this but it became unfeasible because of the lack of student time."

(xiv) Other enrichment activities used

Thirteen per cent of the teachers said they used enrichment devices not included in the above list. A commercial teacher said, "My better typing students are assigned as 'secretaries' to teachers." A social studies teacher reported, "Better students make reports and the occasional speech." Another teacher said, "Even as simple a device as marking them on a more critical level is of value. They rise to a challenge better than ordinary students." A mathematics teacher said, "Occasionally, when an interesting topic was mentioned in Mathematics 31 I have told the bulk of the class that I'm going to ignore them and then proceeded to go on to an intellectual treat with the minority that could follow me." One teacher reported she enriched the experiences of gifted students by having private interviews with them regularly. In classes of French 20 and 30, gifted students are provided with the opportunity to listen to French records for improvement of speech and to stimulate their interest.

Summary From the data it appears that teachers of the gifted are conscious of the needs of such students to some degree at least, and as a result are providing some enrichment of their curriculum. Every one of the 78 teachers claimed to be doing something.

As consolidated above it may appear to some that gifted



students in Alberta composite high schools get rather an extensive amount of enriched experiences. The writer hastens to point out that in terms of what the teachers could be doing this may be very little. And again, individual teachers in some instances do rather much more than others, with many doing very little. There appears to be no general over-all approach by teachers of the gifted to provide enrichment as part of composite school policy. There does not appear to be a concerted effort by all the teachers to provide a consistent approach of enrichment for the gifted. However, gifted students are not without challenging experiences altogether. Some few teachers are doing remarkable jobs with their very able students.

In not a single instance do all the teachers use the same device. More than half the teachers provide guidance in general reading. Between twenty-five per cent of the teachers and fifty per cent plan more difficult assignments and encourage individual research. Between ten and twenty-five per cent of the teachers use the gifted as laboratory and classroom assistants, encourage the administration to provide special facilities for the gifted, encourage the gifted to take part in creative experiences, encourage participation of the gifted in extracurricular activities, urge the gifted to undertake hobbies and collections, make contact with community individuals that are in a position to benefit the gifted, encourage the gifted to take part in community organizations, and organize exhibits of gifted students' work. Fewer than one out of ten teachers takes gifted students on excursions to places of interest, or organize seminar projects to involve gifted students.

#### (c) Library and Laboratory Facilities

The literature generally supports the conclusion that administrators must provide the facilities teachers require to adequately enrich



the curriculum of gifted students. Two of the most important means of facilitating enriched experiences are the school library and science laboratories. By the use of the library and laboratory facilities gifted students are in a position to carry on individual and small group projects over and above their regular assignments. It is in the library and laboratories of the school, that interest in a particular field may be carried farther and plumbed deeper than would be possible without such facilities. Indeed, it is in a rich environment with wide reading opportunities and the chance to experiment that inquisitive minds of gifted students come across topics and subjects that may lay the foundations for their later life work.

With this in mind, and with the belief that teachers are probably in the best position to pass judgment on the schools' facilities most directly connected with their teaching efforts the investigator asked the teachers of the selected group to express their opinions concerning the adequacy of the above-mentioned facilities in terms of their attempts to teach gifted students.

#### (i) Library

Teachers were asked, "Do you consider the school library is adequate to meet any calls which you might make upon it as you attempt to meet the needs of gifted students by means of projects, class assignments, extra reading, etc.?" Table XV shows that seventy-one teachers responded (55 per cent of the total group of teachers of the gifted). Of this group, approximately six out of ten felt the libraries of the composite high schools were adequate or more than adequate. Four out of ten felt they were less than adequate or were undecided.

Teachers were asked to comment on their responses. Some of





their typical comments were:

"We have no full-time librarian so it is less than adequate".

..."It is less than adequate, but probably partly my own fault, since no request for books by me has ever been turned down"...."It is adequate because through school, city, university and other available libraries, students may obtain any material needed"...."We have an excellent library, but research projects go beyond our library facilities"...."There is always room for improvement, and improvement is being made constantly through the acquisition of new books"...."The librarian does wonders with the facilities at her disposal"...."It is difficult to make proper use of the library since it is used as a study hall"...."The science section has insufficient varied material, especially up-to-date books. There are no science magazines".

TABLE XV

AN EXPRESSION OF TEACHERS' OPINIONS ON THE ADEQUACY  
OF THE COMPOSITE HIGH SCHOOL LIBRARIES IN MEETING  
THE NEEDS OF A SELECTED GROUP OF STUDENTS

N = 71		
Adequacy	Number of teachers	Per cent
More than adequate	4	6
Adequate	37	52
Less than adequate	27	38
Undecided	3	4

(ii) Laboratories

Science teachers were asked to respond to the following question:



"Do you consider the scientific equipment in this school is adequate to meet any demands you might make upon it as you attempt to meet the needs of gifted students by means of projects, individual and class assignments, research of an advanced nature, etc.?" Since the investigator does not know the number of science teachers of gifted students in Alberta composite high schools it is impossible to state the per cent response. Twenty-six teachers replied to this question. Fifty-four per cent felt the equipment is adequate or more than adequate; forty-six per cent felt it is less than adequate. Not a single teacher is undecided on this question. (See table XVI)

The teachers were asked, "If you checked 'less than adequate', please name any facilities which you think the school should provide". Some typical comments were:

"There is a shortage of microscopes, slides, and books on microtechnique"...."The equipment is adequate for one class at a time, but when several classes are operating at one time it is insufficient"...."We need more equipment for Science Club activities"...."We need physics lab. equipment of nearly all kinds in greater quantity"...."In a school this size we need at least two chemistry labs"...."Anything I order is provided"...."We need more storage space; more equipment kept in definite labs in order to reduce the amount of hunting required to locate apparatus"...."The course should call for more work in the labs; new and better equip-



ment is needed"...."We have a bare minimum of equipment for a minimum program."

TABLE XVI

AN EXPRESSION OF OPINION ON THE ADEQUACY OF THE COMPOSITE HIGH SCHOOLS' LABORATORY FACILITIES IN MEETING THE NEEDS OF A SELECTED GROUP OF STUDENTS BY THE TEACHERS OF THE GROUP

Adequacy	Number of teachers	Per cent	N = 71
More than adequate	2	8	
Adequate	12	46	
Less than adequate	12	46	
Undecided	0	0	

Summary The investigator is here dealing with facts of opinion. And the opinions are expressed by the group in the Alberta composite high schools who probably are most intimately connected with the facilities on which they pass judgment. Three out of five said the library facilities were adequate; science teachers were fairly evenly divided on the adequateness of the science equipment. The data suggest that there is a large number of teachers of the selected group who are of the opinion that library and science laboratory facilities in the composite high schools are not adequate to meet the demands of an enriched programme for gifted students. And the comments made by the teachers concerning their opinions appear to be legitimate remarks to which administrators could profitably give some of their attention.





### 3. Outcomes of Current Composite High School Practice

#### (a) Students' Use of Library Facilities

To what extent do the selected students use the library facilities of the composite high school? What is the nature of such use? What are the opinions of students concerning the adequacy of the libraries in meeting their reading and assignment needs? In an attempt to throw some light on these questions, the investigator asked the selected students: "About how many times do you visit the school library in a week?" Ninety-three per cent of the selected group responded (101/109). Of the group responding twenty-four said they never visit the libraries of their respective schools. Seventy-seven said they visit the libraries.

Table XVII shows how many students visit in terms of how often they claim to visit.

TABLE XVII

THE EXTENT TO WHICH COMPOSITE HIGH SCHOOL LIBRARY FACILITIES WERE USED BY A  
SELECTED GROUP OF GRADE XII STUDENTS AND THE FREQUENCY  
OF VISITS PAID BY THE SELECTED GROUP

Number of visits	Total	Per cent
Students Responding	101/109	93
No visits.....	24	24
1 visit in two weeks.....	16	16
2 visits in two weeks.....	19	19
3 visits in two weeks.....	9	9



TABLE XVII CONTINUED

Number of Visits	Total	Per cent
4 visits in two weeks.....	12	12
5 visits in two weeks.....	7	7
6 visits in two weeks.....	6	6
7 visits in two weeks.....	1	1
8 or more visits in two weeks.....	7	7

The students who said they visit the library (77/101) were asked "What type of book do you use in the library or take out from the library?" Table XVIII shows that approximately four out of five students using the libraries use reference books for assignments; five out of ten use reference books to satisfy their own interests; and approximately nine out of ten use composite school libraries to get fiction and non-fiction reading material for their own reading enjoyment.

TABLE XVIII

USE MADE OF COMPOSITE HIGH SCHOOL LIBRARIES BY A SELECTED GROUP OF  
GRADE XII STUDENTS

Use made of the Library Facilities	Number of students	Per cent
1. Reference books for assignments	61/77	79
2. Reference books for students' own interest	40/75	53
3. Fiction and Non-Fiction for pleasure	65/74	88



Table XIX shows that when the selected students were questioned concerning the adequacy of the school libraries in meeting their reading needs, approximately six students out of ten said library facilities are adequate or more than adequate. And four students out of ten said the facilities are less than adequate.

TABLE XIX

THE OPINIONS OF A SELECTED GROUP OF GRADE XII STUDENTS IN ALBERTA  
COMPOSITE HIGH SCHOOLS CONCERNING THE ADEQUACY OF THE SCHOOL  
LIBRARIES IN MEETING THEIR READING AND ASSIGNMENT NEEDS

			N = 106
Opinion	Number of students	Per cent	
More than adequate	13	12	
Adequate	51	48	
Less than adequate	42	40	

Summary Perhaps the most significant single finding is that one selected student out of every four said he never makes use of composite high school library facilities. This statement is made in the light of what authorities have said concerning the reading and reading interests of gifted students. Gifted students do considerably more reading than their less able classmates. They read more widely and more difficult books. They have, for the most part, what Terman called 'reading craze'. (166)





Although only 77 students claim to visit the libraries, 106 express opinions concerning the adequacy of the libraries in meeting their reading and assignment needs. One possible explanation of this situation is that the students who did not use the libraries during the past year but did express an opinion on the adequacy of the libraries are students whose experience with the libraries in Grades X and XI made them decide the facilities are inadequate. Two students out of five feel the libraries are inadequate.

Those students that use the libraries use them to assist in doing assignments and for their own reading pleasure. The majority of students make from one to three visits to the libraries in two weeks.

(b) Small-Group and Individual Project Work

Another generally accepted means of providing gifted students with enriched school experiences is the use by teachers of individual and small group projects that interest and challenge the abilities of the students.

With this in mind the investigator asked each of the selected students, "During your enrollment at this school have you at any time undertaken an individual or a small-group project in any of your subject which was not an assignment for the whole class, but rather, was something that you decided to do extra?"

One hundred six out of a possible one hundred nine students responded. Table XX shows that 36 per cent said they were involved while



64 per cent said they were not.

TABLE XX

THE DEGREE OF PARTICIPATION IN INDIVIDUAL AND SMALL GROUP PROJECTS BY A  
SELECTED GROUP OF GRADE XII STUDENTS IN ALBERTA COMPOSITE HIGH SCHOOLS

Answer	Number of students	Per cent	N = 106
Yes	38	36	
No	68	64	

The students were invited to comment on the nature of any projects they undertook. The writer includes some typical comments. One girl undertook a survey in Psychology 20 entitled, "Do students Appreciate The Fine Arts?" Some students reported doing chemistry and physics experiments --- one boy tried to synthesize bakelite; another built an audio-amplifier. Some students said they made reports in social studies. For example, one boy undertook a biographic study of Napoleon, while another wrote and reported on the world's great religions. One student was involved in designing costumes for a drama production. Some reported that they tried writing short stories in English. One student gave a report on 'Civic Government In Action' after attending, as an observer, city-council meetings. Others said they did special reading in French. One boy built a thermometer.



Of the 38 students who worked on projects, 19 said they received assistance from teachers. The aid rendered was in the nature of direction-giving, making materials and facilities available, pointing out books to read and where to find information, giving suggestions with regard to remedying faulty apparatus construction, and giving hints on how to improve style of writing.

The students who did projects were asked, "What school facilities were made available for you to carry on your project?" Their comments indicate that administrative authorities do supply materials and facilities. Students said they used laboratories, sewing rooms, libraries, classrooms, drama and technical shops. One student was given his own desk in the biology laboratory at which he was free to work in his spare time.

When asked about the times at which they did their project work some of the students replied before school hours, others said after. Some did their work during noon hour and some did it during school hours.

Summary According to the students, approximately four out of ten do project work either individually or in small groups. The writer is careful to point out that a student may have been involved in one project or in a number. These data give no indication of how much project work a given student did, only whether or not he has done some.

And that which has been done appears to be, from the comments of the students, authentic enrichment.

Some teachers help students in their project work. From what the students said they give valuable assistance. Administrative authorities make facilities available when called upon.





The significant finding is that 6 out of 10 students said they did not participate in any such enrichment activities.

#### (c) Course Pattern Choices

Probably there are few that would suggest all gifted students should be expected to enter universities and colleges upon completion of their high school education. However, the majority of authorities would agree that most gifted students should be provided with the basis in elementary and secondary schools that will enable them to go on for higher education later if they so desire. Therefore, gifted students should be guided into the matriculation pattern during high school. In the university entrance pattern are to be found the courses that will most likely be challenging to the mentality of gifted youth. A study of the permanent record cards of the selected group of Grade XII students shows that approximately 3 per cent are to be found outside the matriculation pattern.

#### (d) Credit Load

Theoretically, students attending high schools in Alberta can earn a maximum of forty credits in one school year. (Credits correspond to classes, for example, third year high school English is worth five credits, and trigonometry is worth three). For most high school students, a full course load is considered to comprise thirty-five credits (i.e. -- seven, five credit courses). However, a student may carry more than thirty-five, but "under no condition will he be granted more than forty credits in one school year." (167) In order to graduate from high school a student must earn 100 credits. But he may earn up to 120 credits over three years.

The credit system appears to open the way for a degree of enrichment by allowing gifted students to carry extra courses. Thus the forty credit maximum is used up. From a study of the permanent record cards of the selected



Grade XII students, the average number of credits earned by members of the group during their high school career is 108 credits, or approximately forty per cent of what they might earn over and above the necessary 100 credits.

The school with the lowest average shows students earning four credits out of a possible twenty; the school with the highest average shows students earning eleven credits out of twenty.

The generally expressed attitude of the school principals concerning students' credit loads is that, especially in Grade XII, a full year's programme consisted of courses totalling thirty-five credits.

#### (e) Elective Choices of the Selected Students

The nature of the courses taken by gifted students may furnish an important clue to the problem of the nature and extent of enrichment they receive at the hands of school authorities and teachers. It is admitted that subjects like Latin, English Literature 21, and trigonometry are designed especially for gifted students. From this it follows that, on the whole, the administrators of the composite high schools recognize that some courses, by their very nature, are more fitted to meet the interests and abilities of superior students.

Table XXI shows the elective choices of the selected group in Grades X, XI, and XII. In Grade X all matriculation students are required to register in Mathematics 10 and Science 10. This means that Grade X students must in fact take Language 10, Literature 10, Social Studies 10, Health and Personal Development 10, and Physical Education 10, and in addition, as stated above, they must take, if they are in the matriculation pattern, mathematics and science. From this point on students are free to choose electives from the



repertoire of courses offered by the particular school in which each student finds himself. Most of the gifted group took Typewriting 10 (64%). In not another case do more than 30% of the Grade X students take the same course. After typing they chose Biology 11 (or Science 11), French 11, Fabrics and Dress 10, and Electricity 10, Drama 10, and Automotives 10, and others on down to the least number of students taking Metalwork 10.

In Grade XI more students begin to take more of the same courses but still the range of elective choices is wide. The constant subjects which the gifted students must take are Language 20, Literature 20, and Social Studies 20. And matriculation students must continue in the mathematics-science pattern and also take a language. (Regulations do not require them to carry a language but students are led to see the wisdom of the choice if they are in the matriculation pattern.)

The investigator found permanent records containing information on the courses of the selected students for 115 cases. All but two of this number took Science 20 and all but three registered in Mathematics 20. Approximately seven out of ten took French 20, three out of ten took Latin 20, and two out of ten took French 21 and Psychology 20. The students' choices from this point on broaden out widely with a few of the students registered in a variety of electives such as sociology and house furnishings.

By Grade XII the selected group limit their choices considerably. More than ninety per cent of the group took Chemistry and Mathematics 30; more than seventy per cent took Physics and French 30; more than twenty-five per cent took trigonometry and biology; nineteen per cent took Latin. Past this point fewer than one out of ten students took any other elective.

The so-called honours courses are, in the majority of schools,





Mathematics 31, French 11, 21, and 31, English Literature 21, and English Language 21. Table XXI shows that about one-half the group of selected students registered in trigonometry (Mathematics 31); approximately one student out of every five took French 11 and 21, and only four students out of 115 took French 31; about one student out of ten took English Literature 21, and four out of 115 took English Language 21.

TABLE XXI

THE ELECTIVE CHOICES OF A GROUP OF GRADE XII COMPOSITE HIGH SCHOOL STUDENTS IN EACH OF THE SENIOR HIGH SCHOOL GRADES, X, XI, AND XII

Grade X			Grade XI			Grade XII N=115		
Elective	Number of students	%	Elective	Number of students	%	Elective	Number of students	%
Typewriting.....	75	64	Science.....	113	98	Chemistry.....	108	94
Science 11.....	31	26	Mathematics...	112	98	Mathematics 30.	105	91
French 11.....	20	17	French 20.....	76	66	Physics.....	85	74
Fabrics & Dress.	19	17	Latin.....	34	30	French 30.....	83	72
Electricity.....	19	17	Psychology....	26	23	Mathematics 31.	55	48
Drama.....	18	16	French 21.....	19	17	Biology 32.....	31	27
Automotives.....	18	16	Typewriting...	15	13	Latin 30.....	19	17
Foods and nut-			Electricity...	13	11	Typewriting....	5	4
rition.....	12	10	English Lit-			Music.....	4	4
Art.....	11	10	erature 21...	9	8	French 31.....	4	4
Woodworking.....	13	11	Bookkeeping...	6	4	Bookkeeping....	2	2
Bookkeeping.....	9	8	Physical Ed-			Drama.....	2	2
Music.....	8	8	ucation....	5	4	Fabrics & Dress	2	2
Business Fund-			Drama.....	5	4	German.....	2	2
amentals.....	8	8	Fabrics & Dress	5	4	Office Practice	2	2
Shorthand.....	8	8	English Lang-			Secretarial		
Arts & Crafts...	5	4	uage 21.....	5	4	Training.....	2	2
Printing.....	3	3	Music.....	5	4	Business Mach-		
Home Economics	3	3	German.....	4	3	ines.....	2	2
General Mech-			Law.....	4	3	Economics.....	1	1
anics.....	3	3	Automotives...	4	3	Mathematics 32.	1	1
Agriculture.....	2	2	Shorthand.....	4	3	Arts & Crafts..	1	1
Metalwork.....	2	2	Foods & Nut-					
			rition.....	3	3	Household Furn-		
			Arts & Crafts.	2	2	ishings.....	1	1



TABLE XXI CONTINUED

Grade X		Grade XI		Grade XII	
Elective	Number of % students	Elective	Number of % students	Elective	Number of % students
		Printing.....	2      2		
		Office			
		Practice....	3      3		
		Clerical			
		Practice....	2      2		
		Sociology.....	1      1		
		Metalwork.....	1      1		
		Household			
		Furnishings...	1      1		

How many of the gifted students were found in subjects in the fine arts field (art, music, drama)? Ten per cent of the selected group took art in Grade X and none carried on with it in Grade XI; Sixteen per cent of the group took drama in Grade X, while in Grade XI the amount was four per cent, and in Grade XII it was further reduced to approximately two per cent of the total.

In Schools 600 and 700 the respective administrators follow a policy of directing gifted Grade X students into vocational elective choices such as automotives and fabrics and dress.

Summary Any schools offering elective choices are, to a degree, enriching the education of the students involved in them. If properly motivated, gifted students want to follow out their interests and prefer to take the hard subjects to the easy ones. They seek knowledge in many fields through reading, experimenting, and discussion.



In consonance with what has been stated above, the Alberta composite high schools provide opportunities to register in a wide variety of elective courses. There are constant subjects which all students are required to take, and students in the matriculation pattern have their choices limited still further. But, in spite of the limitations, high school students still have some elective choices. This is truer in Grade X and XI than in Grade XII. As a student proceeds through high school the elective choice range narrows.

By Grade XII the matriculants are, for the most part, taking English, social studies, chemistry, algebra, physics and French. Almost half the students are taking trigonometry. With eight periods in a day and six choices filled, and the administrative ruling that generally is practiced in the schools, students are left with one free choice. From Table XXI this is probably either biology or Latin.

Because a student is registered in the mathematics, science, and language courses, it may be assumed that he has, per se, an enriched programme. But unless the chemistry teacher or the Latin teacher, etcetera, provides challenging experiences in class, that is, provides something over and above what average students get in chemistry, then there is, in fact, no enrichment of the gifted student's experiences in chemistry.

Therefore, from an examination of the elective choices of gifted students it might appear that he is getting an enriched curriculum. Such an assumption may be far from the truth.

From the data the writer feels confident enough to say that the potentiality of the composite high schools to provide enrichment of the curriculum is very great.





Students stay clear of the fine arts subjects; very few are interested in taking two languages; not more than half carry both algebra and trigonometry in Grade XII; the majority of the gifted students are taking at least two sciences, one mathematics course, and one language in addition to English and social studies.

#### 4. Summary

As a group, teachers and administrators tend to recognize the special curriculum and extracurricular needs of gifted students. According to principals they are willing to make possible with existing facilities the provision of enriching experiences both in and out of classrooms. However there appears to be no administrative policy of enrichment centered on the needs of gifted students as such. Some schools organize what might be termed 'honour classes' more or less restricted to gifted students.

The majority of teachers said they provide at least some degree of classroom enrichment. In this respect the teachers appear to be mostly 'on their own', and receive little or no direction except what they provide themselves in meeting the needs of their gifted students.

Viewing the composite school picture of enrichment as a whole and considering the potential for providing for the special needs of gifted students by means of curricular and extracurricular enrichment, very little is actually being done. This in no way detracts from the fact that some schools do much more than others. Some teachers do rather outstanding jobs in interesting and challenging gifted students under their direction. Such teachers are few in number. Most of the teachers of the gifted do relatively little by way of enrichment.



A large portion of the students do not use the composite high school library facilities; nearly half the selected students feel the library facilities are less than adequate; a similar proportion of teachers said they are inadequate.

Composite high school laboratory facilities leave much to be desired as far as the education of gifted students is concerned.

Gifted students as a group take very little part in individual and small group projects designed to assist them in their best development.

Practically all the selected students are registered in the matriculation (university entrance) pattern taking the more difficult elective choices-- e.g. -- mathematics, sciences, and languages.



## FOOTNOTES TO CHAPTER VII

(165) Handbook, Senior High School (Province of Alberta, Department of Education, 1957-58), p. 10.

(166) Witty, P. A., and Lehman, H. E. "The Reading and Reading Interests of Gifted Children", Pedagogical Seminar, 45(December, 1934), pp. 466-481.

(167) Handbook, Senior High School, op. cit., p. 10.





## CHAPTER VIII

## DEVELOPING GIFTEDNESS: USE OF COMMUNITY RESOURCES

## 1. The Criterion

A good secondary programme for the education of gifted students uses community resources that are available in the best development of interested and able youth.

Schools may encourage the gifted to take advantage of opportunities offered by community institutions and organizations to make more complete their education. Individual high schools are not always in a position to provide a particular type of enrichment for one or a number of gifted students, but within the community where the school is situated there may be an institution or an organization in a position to provide the necessary leadership and facilities. Some such institutions and organizations which have in the past proven valuable in this respect are choirs, public libraries, art classes, and a wide variety of youth organizations in which the gifted may become leaders as well as followers.

Use of community resources may occur in another respect, Schools may actively exploit the community through such activities as field trips and visits to places of interest. Such exploitation may involve museums, courts, concerts, commercial firms, and industrial plants. Schools may invite gifted citizens to meet interested students and talk with them.

In the chapters dealing with motivation and enrichment, the latter use of community resources was discussed from the viewpoint of what the schools are doing. Data show that to a degree schools invite in community citizens to meet gifted students. In the main this is done with regard to vocational guidance. Some of the schools visit commercial firms, etc. Because this



information has been previously provided, the following discussion will center around the schools' efforts to involve gifted students in worthwhile community organizations.

## 2. Current Practice In Composite High Schools

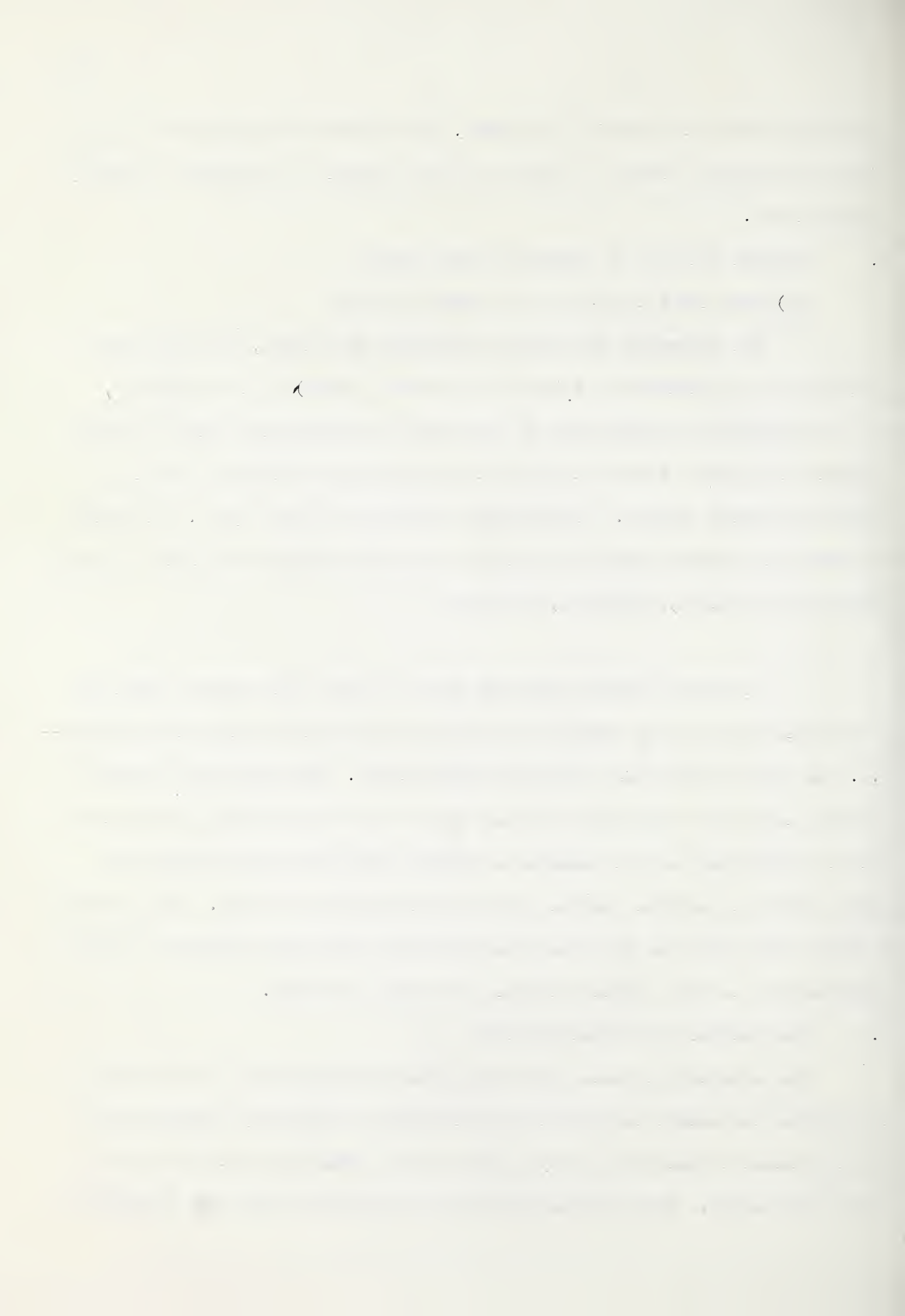
### (a) From the Viewpoint of the Administration

The composite high school principals were asked, "Are there any individuals or organizations (outside the school system) in the community, who are specifically called upon by the school in meeting the needs of gifted students enrolled?" Seven out of eight principals gave either a direct or a qualified negative answer. One principal answered a direct 'yes'. At School 400 community resource people are called in to aid teachers enrich the school's offerings in science, dramatics, and music.

At School 300 the principal made it clear that teachers point out to students the existing community facilities available to interested students--e.g. the public library and cultural organizations. The principal of School 700 said that while the city's curling club is in no way directly associated with the high school, it is anxious to provide facilities for students and makes efforts to attract students who are interested in curling. The principal of School 800 said that the school has connexions with some community cultural organizations to which gifted students are urged to belong.

## 3. The Outcome of Current Practice

The selected students were asked a series of questions in an attempt to discover the extent to which they participate in community organizations, and the extent to which they play a part in the leadership of the groups to which they belong. The questions above were calculated to put the students in



a position to answer the more important question concerned with discovering the number of students participating in community organizations because the school urged them to belong or made it possible for them to belong.

Table XXII shows that 88 out of 109 students claimed to belong to community organizations. The students were asked to name the organizations to which they belong. On the whole they named groups such as church youth groups, Scouts, Cadets, choirs, fraternities, and athletic clubs. The 88 students (81 per cent) claimed to hold 200 memberships. Spreading this membership over the selected group as a whole the ratio of memberships to students becomes approximately 1.8. Sixty-nine of the 88 students holding memberships claimed to be, or have been, holders of leadership positions within the organizations and clubs -- e.g. president, secretary, etc. When the 69 in the leadership group are spread over the total group of selected students the ratio of positions to gifted students becomes approximately 1.3. (141/109)

More than four-fifths of the selected students belong to one or more community organizations, and over three-fifths are or have been leaders in such groups. The number of selected students who said they belong to community organizations because of the schools' influence or because the schools' made it possible for them to belong is 11 out of 109 or approximately 10 per cent.

4. Summary From the data above selected students as a group, are active in one or more community organizations. Their membership is not the result of the schools' influence. The composite high schools play a relatively small role in directing gifted students to take advantage of community resources such as bands, libraries, drama groups, art clubs, and so forth. The





organizations to which the selected group belong are mainly service groups or athletic groups. They are not, in the main, cultural and educational organizations.

TABLE XXII

THE MEMBERSHIP IN COMMUNITY ORGANIZATIONS OF A SELECTED GROUP OF GRADE XII COMPOSITE HIGH SCHOOL STUDENTS AND THE NUMBER IN SUCH ORGANIZATIONS BECAUSE THE SCHOOLS MADE IT POSSIBLE

	Number	Per cent or Ratio	N= 109
Selected student participation in community organizations.....	88	81	
Memberships/Selected students.....	200		1.8
Selected students holding leadership positions.....	69	63	
Leadership positions/selected students	141		1.3
Selected students participating in community organizations because the schools made it possible.....	11	10	

Nineteen per cent of the selected group belong to no community organizations. If these students have interests and abilities that community organizations and groups are in a position to develop there are those who say the schools should undertake to interest such students in participating in the organizations and taking advantage of the opportunities provided. If these students have the potential for some day becoming community leaders, they are at present getting no practice in leading community groups, or for that matter, even taking part in them as followers.



## CHAPTER IX

## DEVELOPING GIFTEDNESS: ADEQUATE ADMINISTRATIVE SUPERVISORY PRACTICES

## 1. The Criterion

Secondary school administrators concerned with the provision of a good programme for the education of gifted students provide adequate supervisory leadership for the teachers of the gifted.

Teachers are involved in a programme of in-service training which specifically aims to interpret the problems, characteristics and needs of gifted students to them. And such a programme sets out to acquaint teachers with up-to-date ideas and practices concerning the education of gifted students.

The supervisory programme is concerned with building an enriched curriculum for gifted students. It involves the teachers in a concerted effort to plan and carry out a curriculum that is both more intensive and extensive than that developed for average students. All the teachers understand the aims of the enrichment programme and along with administrators give their wholehearted support to a commonly agreed upon general approach to the problem of providing a challenging curriculum for those students able to meet high standards and hard work.

The supervisory programme, to be effective, will involve an evaluation of the effectiveness of teachers and facilities in meeting the needs of gifted students. This would mean a constant evaluation of the schools' total approach to the education of the gifted and would result in changes that would tend to improve the programme.



## 2. Current Practice In Composite High Schools

### (a) From the Viewpoint of the Principals

#### (i) In-service Training

In answer to the question, "During the past year what in-service training has been carried on which related directly to increasing the understanding of teachers about gifted students?", two composite high school principals said nothing was done. In the other six schools the extent of such training ranged from 'practically nothing' to a planned programme.

The principal at School 300 said nothing was done in this regard except what may have been done by coordinators in meetings with teachers.

The principal at School 400 made it clear that the departmental heads have dealt with the problem of the gifted in their meetings with teachers. He said that social studies and English courses were revised to provide the gifted with more difficult courses than average high school students get. The science course was divided in Grade X into chemistry and physics for superior students.

The principal at School 500 said practically nothing was done in this regard. There were a number of opportunities provided during the school year when in-service training may have been carried on, but probably was not. For example, the education of gifted students could have come up at any one of the three regular yearly meetings of all the teachers at School 500. Department heads may have arranged to discuss the education of the gifted at their meetings with teachers. Once a year school guidance officials meet with new teachers on staff and this presents an opportunity to carry on some in-service training related to the gifted. The city school administrative authorities carry on an in-service training programme where this may come up. In addition,





the school system's guidance department runs evening classes for city teachers who wish to attend, where the education of gifted students may be discussed.

At School 600 the only in-service training that was carried on during the school year centered around the field of English and was not concerned with the education of gifted students.

The principal of School 700 said that there was some in-service training concerning the education of the gifted at his school. It involved 'how to handle them and what to do for them'. Those in charge of the training sessions were the principal, the superintendent of schools and the assistant superintendent.

At School 800 during staff meetings the progress of the gifted, especially those in the under-achieving category, was discussed. But nothing more than this was done which could be considered as in-service training of the teachers of gifted students.

Summary Two schools had more or less planned in-service training specifically directed at the education of gifted students. Three did nothing in this regard. And three other principals reported something may have been done which helped teachers better meet the needs of gifted students.

From the information gathered there is apparently very little emphasis placed on the in-service training of teachers of gifted students in Alberta composite high schools.

(ii) Supervisory Personnel Available

The composite high school principals were asked to name the supervisory personnel available for the teachers of the gifted to consult on problems they may have as a result of their attempts to teach the gifted.



From their replies it can be said that in each school the administrative authorities are available -- i.e. -- the principal, vice or assistant principals, and coordinators or department heads where they are employed. In each of the eight schools the officials in the respective guidance departments are on-call and are in a position to assist the teachers of the gifted. Five of the eight schools feel free to call upon city-system supervisors of art, music, physical education, home economics, and shops. Such supervisors are not secondary school supervisors as such but are available to assist teachers in secondary schools if need be. Similarly, the same five schools are in a position to call upon central office guidance officials. All eight schools are free to call upon the services of the provincial guidance officials as well as provincial high school inspectors. The superintendents as well as the assistant superintendents in the respective systems are available to assist the schools if need be. And in one Alberta center two of the schools may seek assistance from the school system's Rapid Learners' Committee under the direction of the superintendent.

Summary While there may be a limited amount of actual in-service training of teachers of the gifted, apparently there is no shortage of personnel to plan and execute such a programme. Not only are there officials in each school to work with the teachers of the gifted, there are also officials in the local school systems as well as provincial government officials who may be called upon to assist in training teachers of gifted students on the job.

### (iii) Evaluation of Teacher Effectiveness

The investigator made an attempt to discover whether or not during the past year there was an evaluation of the effectiveness of teachers



in meeting the needs of their gifted students.

Four schools said there was no attempt made to evaluate the teachers; two schools answered with a qualified 'no' and two schools said they attempted to evaluate teachers' effectiveness.

At School 100 the principal's policy was to examine the results of yearly final examinations and to judge which teachers were effective as teachers of gifted students. He assumed that gifted students achieved well on final examinations if they were taught by an effective teacher. Gifted students who fared badly on final examinations were held to be the products of an ineffective teacher, one who was not able to get the best out of his students. On this basis teachers were assigned to the special classes in the school.

At School 200 the principal visited classroom teachers during class hours in order to get a rough estimate of their effectiveness as teachers of gifted students. He said, "It was mostly an attempt to see to what degree the teachers were challenging the gifted by means of broadened curriculum offerings."

The principal at School 300 answered with a qualified 'no'. He said that all through the school year there occurred a constant evaluation of the effectiveness of all the teachers in meeting the needs of all the students. The programme of evaluation was carried out by coordinators and through room visits by the principal.

At School 600 the principal said he gained some idea of how well teachers were meeting the needs of the students by the nature and frequency of their visits to him to discuss problems and seek assistance in





becoming more effective teachers. He said that gifted students seek out gifted teachers. This gives him some clues concerning the effective and ineffective teachers of gifted students.

Summary Administrators in Alberta composite high schools, in general, make no planned effort to specifically evaluate the effectiveness of teachers of gifted students. And at the schools where some form of evaluation is carried on it seems to be a process involving the subjective judgments of coordinators and principals. The investigator asked each principal for a written statement of the policy of each school with regard to the school's programme for the education of gifted students. Not one school has a written policy. In this light it may be asked, In terms of what do the principals evaluate teacher effectiveness? Is it in terms of students' achievement, or in terms of the number of students going on for further education? Is it in terms of the subject choices of students? Their interest and personality development? The number of leadership positions held by gifted students?

This general lack of a planned programme of evaluation may be the result of a lack of clear aims concerning the education of gifted students; it may be the result of a lack of facilities and personnel to do an adequate job; perhaps the principals believe the teachers are doing their best and so evaluation would be profitless; perhaps they believe evaluation to be unimportant.

(b) From the Viewpoint of Guidance Coordinators

Guidance coordinators in the eight schools were asked to answer yes or no to the following question: "During the current school year or within the previous two years, has this guidance department made any study of the selected group of Grade XII students?"





In not a single school was there a study of gifted students as such undertaken during the past three years. However, at two schools there was a research-type study undertaken in an attempt to benefit gifted students among others. Within the past three years Grade IX departmental marks on final examinations were treated statistically and from the results it is possible to predict the probable success of students choosing the matriculation pattern in Grade X from each student's particular subject standings.

For example, in School 400, if a student coming from Grade IX wanted to be enrolled in the matriculation pattern and it was known that his Grade IX departmental standings were below a B average, the student would be informed that his chances of being a successful matriculant were rather slim and he would be urged to register in the shop or commercial pattern.

It should be pointed out that the guidance departments of the composite high schools have been involved since 1957 in a continuing study of gifted students undertaken by the Composite High Schools' Principals' Association. The study aims to follow up approximately the top 20 per cent in intelligence of the 1957-58 Grade X students. A study will be made of such considerations as drop-outs, acceleration and retardation, academic records of achievement and under-achievement, enrichment practices of the schools, enrichment provided by the students outside of school, personal development, involvement in extracurricular activities, to name a few. The results of the study are to be available in 1960.

Summary Six schools did nothing on their own to study the problems faced by gifted students and their teachers in an attempt to clarify the problems and to bring the potentialities of the schools and school systems to



bear on solving the problems, to some degree at least, and thereby enhancing the best development of gifted students. Two schools did undertake studies not directly related to the education of the gifted but which benefited the gifted in the long run. In all the schools there is at present a continuing study of a group of gifted students under the auspices of the Composite High Schools' Principals' Association.

(c) From the Viewpoint of Teachers

From the teachers of the selected group of Grade XII students the investigator attempted to discover the nature and extent of composite high school supervisory practices that involved them specifically as teachers of gifted students. The investigator also sought to discover the amount of reading teachers do on their own about the education of the gifted.

(i) Supervision From the Guidance Department

The teachers were asked to indicate whether or not they made any calls during the current school year in order to get help from guidance officials in understanding and teaching any of the selected group of Grade XII students.

Seventeen per cent of the 78 teachers responding out of 127 said they called at least once on guidance officials during the current school year for assistance in understanding and teaching gifted students. In the main the teachers sought advice concerning ways and means of assisting particular students in overcoming academic, social, or emotional difficulties. (See table XXII)

(ii) Teachers Involved in Curriculum Revision

Table XXIII shows that 32 per cent of the teachers of the



gifted are on department of education curriculum committees. The teachers indicated the nature of their committee work. For example, some work on the development of senior high school art courses; some work on the revision of the Science 20 course; others are members of the English committee, the drama committee, the Psychology 20 sub-committee, the mathematics committee, French and biology and social studies committees. One teacher is on a departmental committee the aim of which is to revise the free reading programme in both junior and senior high schools.

The teachers commented on their work. One said, "The revision of the psychology course is certainly not being done with the idea of meeting the needs of the gifted group", while another said, "The revision of the Psychology 20 course is an attempt to find a text which will provide for the average students and also stimulate the brighter students."

A mathematics teacher said, "The high school committee on mathematics is continually trying to improve the scope and sequence of mathematics." Another said, "I have spent the last eight years on the high school math. curriculum committee in the hope of persuading the powers that be to provide courses suited to the gifted."

A science teacher said, "The general revision of the provincial science course is taking into consideration and has been for several years, the supplying of enrichment for the gifted student."

While 32 per cent of the teachers of the gifted are on department of education curriculum committees, twice as many claimed to be revising both the subject matter of the courses they teach and the methods they use in teaching them, in an attempt to provide more challenging work





for gifted students. (See table XXIII)

The teachers were asked to briefly explain the manner in which they revise courses and methods for the gifted. Following are some typical examples of what they do:

A French teacher said, "The revision is constant with the aim being to give more detailed explanations and varied examples of usage." A drama teacher commented, "I have introduced material that is classical in nature, which was mostly well received; I have tried to raise the level of play appreciation in drama." A science teacher reported, "We have been experimenting with the science courses instead of following the curriculum." Another said, "I have always made the Science 10 and 20 courses much more thorough than called for by the curriculum." A teacher of mathematics said, "I introduce some advanced material occasionally." A physics teacher reported, "I undertake extra work and teaching on such things as measurement involving the metric system, Newton's Laws of Motion, the history of the development of the laws of gravitation, etcetera." A social studies teacher said, "Bright students in my classes are required to do wider reading and more reporting than average students."

Table XXIII shows that 29 per cent of the teachers who revise courses and methods receive help from their respective administrators. The teachers commented on the nature of the assistance received. Some typical comments were, "I received approval for my actions."; "The recommended reading material was ordered..."; "The head of the science department is most anxious that science courses be sufficiently good for matriculation students and therefore he initiates, encourages and supports all efforts in this regard..."; "I received full cooperation...."; "Assistance was given in getting new reference



books and periodicals..."; "Assistance was received from discussions in staff meetings and meetings of the mathematics teachers as a group."

### (iii) Teachers Involved In In-Service Training

Table XXIII shows that seven teachers out of 78 indicated they were involved in in-service training that enabled them to better deal with gifted students.

Some of the comments of the teachers who were involved are quoted below: "We had exceptionally fine seminars in the English department. We had practical discussions based on a definite program to fill listed needs in our teaching. Seminar discussions were not limited to the gifted."...; "I received in-service training in counselling..."; "This year our mathematics department made a study of "Modern Mathematics" in order to see the bent that the handling of the traditional courses might take..."; "At staff meetings guidance department members have discussed the topic..."; "At this school the science teachers had meetings with the superintendent of schools at which we discussed gifted students and their education."

### (iv) The Evaluation of Teacher Effectiveness

The teachers of the selected group of Grade XII students were asked, "During the current school year has anyone visited your classroom while you were teaching any members of the selected group with the expressed purpose being to evaluate your effectiveness as a teacher of the gifted?"

Table XXIII shows that not one of the 63 teachers responding answered in the affirmative.

### (v) Teachers' Efforts 'On Their Own' To Increase their Knowledge Concerning the Education of Gifted Students

Are the teachers of the gifted increasing their knowledge of



research findings on the education of the gifted? In an attempt to throw some light on the answer to this question the investigator asked the teachers, "What books or articles have you read on gifted children and youth and would recommend to other teachers?" Seventy-seven teachers responded to this question. Of this number twenty-five (32 per cent) said they read about the gifted, but the great majority did not name what they read and would recommend to other teachers. Of the group that reported the names of books and periodical articles read, the great majority mentioned popular magazine articles found in publications like Life magazine and Time magazine. A few teachers mentioned books and articles by such persons as Terman, Hollingworth, Witty, and Laycock.

TABLE XXIII

THE EXTENT TO WHICH SUPERVISORY PRACTICES CONCERNING THE EDUCATION  
OF GIFTED STUDENTS INVOLVED THE TEACHERS OF A SELECTED GROUP  
OF GRADE XII STUDENTS IN ALBERTA COMPOSITE HIGH SCHOOLS

Supervisory Practice	Number of teachers	Per cent
1. Calls on the guidance department for assistance in teaching the gifted.....	14/78	17
2. Curriculum revision: Departmental.....	23/73	32
3. Curriculum revision: Classroom.....	46/73	63
4. Aid received from school administrators in the process of classroom curriculum revision.....	12/41	29
5. In-service training in local composite high schools.....	7/78	9
6. Effectiveness as teachers of the gifted evaluated by school administrative authorities.....	0/63	0





Summary One out of five teachers of the selected group sought help from guidance departments in solving problems related to the education of gifted students; one-third of the teachers are actively involved in revisions of the Alberta Provincial Department of Education; two-thirds of the teachers carried on curriculum revision in their own classrooms in an attempt to challenge their gifted students, and of this number, three out of ten received assistance from administrative authorities within the schools in achieving their goals; in-service training involved approximately one teacher out of ten in programmes specifically designed to help them better teach and understand gifted students; in not a single instance were the teachers knowingly aware that they were being evaluated as teachers of the gifted by school administrators; one-third of the teachers said they were increasing their knowledge of how and what to teach gifted students through their own reading. This estimate is probably too high considering the intent of the question.

Supervision by guidance officials as requested by the teachers of the gifted was mostly a matter of supplying information and advice concerning individual students rather than general information concerning the education of gifted students. As a group, composite high school teachers of the selected group are aware of the need to have more difficult and challenging courses for gifted students than it is necessary to have for the less able. In a number of instances the teachers are doing what it is possible for them to do in bringing about desirable curriculum changes for the benefit of the gifted. This is occurring at both the provincial and classroom levels of curriculum revision. At least one teacher out of three is doing nothing to revise his course of studies in order to more adequately challenge the gifted. Perhaps such teachers





feel their courses are difficult enough as they exist in order to challenge even the brightest students.

In the main, administrative officials wholeheartedly approve teachers' efforts in curriculum revision at the classroom level. In every case when a teacher requested assistance from the administration it was received.

In-service training related directly to the education of gifted youth is almost non-existent in Alberta composite high schools. As far as teachers are concerned, there is no programme of evaluation of their effectiveness as teachers of the gifted which they know about.

### 3. Summary

Supervisory practices specifically aimed at the teachers of the selected students and having to do with the education of gifted students is very limited in Alberta composite high schools. In-service training of teachers as teachers of the gifted is generally non-existent. Some of the teachers are involved in curriculum revision at the provincial level; some are involved in curriculum revision at the local school system level. In both cases they are not involved specifically in revision directed toward the development of courses of study designed just for gifted students. Rather, they are involved in curriculum revision that affects all the secondary school students taking particular subjects. The majority of the teachers of the selected group said they practice some degree of curriculum revision at the classroom level...on their own, so to speak, in an attempt to meet the needs of gifted students. Certainly what they do is not part of an administrative program of supervisory leadership for teachers of gifted students.



No more than one-third of the teachers questioned attempt to add to their own knowledge concerning the education of gifted students by doing reading on the subject by recognized authorities.

The composite high schools appeared to have no policy directed at the evaluation of teachers of the gifted. None of the teachers were knowingly evaluated in their role as teachers of the gifted.



## CHAPTER X

## SUMMARY, CONCLUSIONS, AND FURTHER RESEARCH

The aim of this study was to evaluate Alberta composite high school practices related to the education of gifted youth in terms of a set of ideal criteria. The criteria are based on the findings of research as reported in the literature and related studies on the education of the gifted in secondary schools.

They have to do with the following practices:

1. Discovery of the gifted;
2. Administrative devices used in meeting the needs of gifted students in regular classes, in special groups, and by means of acceleration;
3. Motivation of the gifted to high academic achievement and participation in extracurricular activities directly related to the development of their interests and abilities;
4. Enrichment of all the experiences which the gifted undergo in the classroom and out of the classroom; provision of a quality and level of curriculum different from and more difficult and demanding than that received by the less able;
5. Use of community resources in supplementing the facilities, materials, and individuals that the schools are able to provide in the best development of the interests, aptitudes, and abilities of the gifted;
6. Provision by school administrative officials of programmes of supervisory leadership involving the teachers of gifted





students in in-service training and curriculum revisions directly related to the education of the gifted; providing a programme of supervisory leadership that is concerned with the evaluation of the effectiveness of teachers in meeting the needs of their gifted students.

More than one hundred gifted students, their teachers, guidance counselors, and principals were questioned concerning their education in Alberta composite high schools; the permanent record card of each student was examined for pertinent information. Some of the specific findings related to current composite school practices involving the gifted students and their teachers are:

1. The teachers are unable to identify many of their gifted students;
2. The teachers believe they would find it more possible to meet the needs of gifted students in their classes if such classes were composed only of the schools' brighter students and if the classes were small in numbers;
3. The teachers of the selected students are not involved in local school programmes of in-service training and curriculum revision directed specifically at the education of gifted youth; nor are they involved in any evaluation by administrators of their effectiveness as teachers of the gifted;
4. The students tend to like school but feel they are not worked hard enough while at school;
5. The students like the subjects that are interesting and challenging and dislike the subjects that are uninteresting



and boring; the favorite subjects of the selected group are mathematics and science courses, and the subjects that are liked the least are those in English, social studies, and languages;

6. The selected students want teachers that are friendly and understanding, have an extensive knowledge of their subject matter, and have teaching ability, i.e.--are able to convey ideas clearly;
7. More than half the group of selected students did not win even one award during Grades X and XI;
8. At least one-third of the group of students are not involved in any extracurricular activities; and of those that are involved, more are participants in athletic activities than clubs of an academic nature (e.g. --- science club or photography club...);
9. Most of the students that participate in extracurricular activities occupy leadership positions in the activities in which they participate;
10. Practically all the selected group are found to be in the matriculation pattern; generally speaking their Grade XII subject elective choices (after English and social studies) are: chemistry, algebra, physics, French, and one or the other of trigonometry, biology, or Latin; relatively few students register at any time in art, music, and drama classes;



11. On the whole, the selected students earn fewer than half the credits above 100 they could earn and still remain within the maximum number of credits allowable;
12. Very few of the students are found in more than one of the so-called honour classes; relatively few are found in any of the honour classes;
13. Approximately one-fourth of the selected students make no use whatsoever of composite school library facilities; three-fifths do not participate in project work of a small group or individual nature;
14. Approximately one student out of ten fails at least one subject during his high school career (usually in Grade XI);
15. Most of the selected students are active members of community organizations in which they provide a considerable amount of leadership; but their membership in such organizations is not because the schools direct them there; two students out of ten belong to no community organizations;
16. The vast majority of students have chosen their life vocation; at least three out of four are actively planning to go on for further education; the most common vocational choices are engineering, teaching, and nursing.

More generally now, what may be said concerning how Alberta composite high schools measure up in terms of the criteria of a good secondary school programme for the education of gifted students? First, considering the discovery of gifted students, it may be said that administrative officials



in the schools have a knowledge of students with high mental ability. There appears to be no programme designed to diffuse the information among the teachers. Nor are the teachers involved in a planned search for gifted students. Apparently the schools define giftedness as high mental ability and/or high achievement in academic subjects. There is little concern for the discovery of talent in the fine arts field or the field of social leadership.

With regard to the administrative devices used in meeting the needs of gifted students there are schools that set out to limit all kinds of special groupings and preserve the gifted in regular classes along with a cross-section of student-ability; there are schools that do little more about special groupings than the students themselves accomplish by their course choices; some schools actively set out to group students in terms of mental ability and/or high academic achievement; none of the schools find it easy to accelerate gifted students because of regulations of the Department of Education. Most of the principals are in favor of more acceleration of the gifted than is presently allowed.

The composite high schools actively plan to motivate the gifted to high academic achievement by means of awards and scholarships and appear to do so with some degree of success; the schools stress vocational guidance, also with some degree of success. While students may have a knowledge of their academic ability from guidance officials, there is no attempt to convey such information to the parents of the gifted. Guidance officials do little to guide the selected students into extracurricular activities that will enhance their best development; they may be successful in guiding the gifted





into the matriculation pattern. That is to say, the fact that most of the students are in the matriculation pattern may or may not be because of the influence of the guidance departments; certainly it is an aim of most of them.

Guidance officials express concern about the problem of the under-achievement of gifted students to a greater or lesser degree from school to school. Certainly there is no common general approach in Alberta composite high schools in meeting this problem and overcoming it through a planned effort on the part of administrators and guidance officials.

Guidance of a personal nature is limited. The personality and human relations problems of the gifted are dealt with to a degree, but usually guidance officials refer serious cases to community or provincial guidance clinics.

The gifted are provided with a variety of extracurricular activities, mostly athletic in nature, in which to try out their interests and abilities. Guidance officials seem to have little influence on the extracurricular choices of the selected students.

Most contacts with the community for the benefit of the gifted are contacts made with regard to vocational motivation. Such contacts usually occur on 'Career Day'...once a year. Very rarely do the schools have gifted citizens meet with gifted students over a period of time in or out of the schools on subjects of mutual interest.

The need for a special kind of education for the gifted (enriched education) is recognized by many administrators and teachers. And because of this there are in all the schools some teachers who provide a brand of



educational experiences for some of their gifted students different in quality from those provided for their less able. They set out to challenge their gifted students...with the support of their administrators, at least to some degree. But certainly such teachers are in the minority. Most teachers if they undertake classroom enrichment at all, undertake very little.

Very much less is done with regard to enrichment than could be done if the teachers were wholeheartedly committed to a policy of enrichment under the direction of administrative officials.

It was obvious that library and laboratory facilities are not extensively used by the gifted students within a programme designed to involve them in special courses, group project work, and individual research.

The exploitation of community resources by school officials in meeting the needs of gifted students is limited. Some schools send students on excursions and visits to places of interest. Some invite community citizens to take an active part in the education of the gifted. Almost non-existent is the practice of encouraging gifted students to belong to community clubs and organizations that can prove beneficial in the development of their potential abilities and interests.

The administrative officials in the composite high schools do not purposely set out to involve teachers of gifted students as such in programmes of supervision concerned with in-service training, curriculum revision and evaluation of teacher-effectiveness.

In conclusion what is to be said about the education of gifted youth in Alberta composite high schools? The writer believes that the potential of these schools, with student populations ranging from 700 to 1500 students,



with a wide variety of facilities undergirding a wide range of elective choices, with as many as 65 teachers, with administrative staffs large enough to permit the establishment of department heads, and with a philosophy concerned with meeting the needs educationalwise of all the students that come through their doors, is such that they are in a position to achieve the aims of a good programme for the education of gifted youth. And the writer believes there is evidence of a growing concern for the education of the gifted by teachers and administrators.

In spite of this, at present the Alberta composite high schools are doing relatively little compared to what they might do for the gifted. There appears to be the lack of general over-all planning with specific reference to the education of the gifted. Teachers and administrators are not involved in a programme with specific aims to which they gave their wholehearted support. To meet the challenge, teachers of the gifted should come to know who their gifted students are...gifted academically and in the non-academic areas as well; they should know the characteristics of the gifted and understand their educational needs, especially their special curriculum needs; administrators could do much more to make enrichment of the experiences of gifted students possible by means of more complete ability groupings and honours courses, and by means of supplying facilities required by teachers and students if their abilities and interests are to be challenged adequately; guidance departments could play a much more vital role in the education of the gifted given more time and better facilities to work with them; much greater use could be made of the resources available in the respective communities by school authorities in the education of gifted students.







What has been said above notwithstanding, there are teachers and administrators vitally concerned with the education of their gifted students, and who are doing, in some respects, a remarkable job. What the writer is suggesting is that the remarkable job done in widely separated instances and in different areas of the education of gifted students be carried over into a general approach to their education in all the composite high schools.

This study was concerned with a survey of the education of gifted students in Alberta composite high schools. The results have given rise to some interesting questions which require further study if they are to be at all clarified. Following are listed some of the questions raised:

1. Why do the selected students like mathematics-science subjects and dislike the languages, social studies and English?
2. What are the qualities of successful teachers of gifted students?
3. How many of the selected group actually went on to university and how successful were those that did?
4. What are the factors in the composite school practices that are related to the fact that so many gifted students actively planned to go on for higher education?
5. In what respects do the achievements of gifted students retained in regular high school classes differ from and compare with the achievements of gifted students in so-called special classes?
6. With respect to the few 'accelerated students' in the composite high schools from time to time, what happened to them educationally? vocationally? Do their educational histories compare favorably with non-accelerates in terms of desirable educational outcomes?
7. Could gifted students earn 120 credits and do as well in school achievement as if they had earned only 100 credits?
8. What is the nature and extent of the under-achievement of gifted students in composite high schools?



## APPENDIX A



## SAMPLE 1

## INFORMATION FROM THE PERMANENT RECORDS

Name of School \_\_\_\_\_ Name of Student \_\_\_\_\_

1. Course Pattern: M \_\_\_\_ C \_\_\_\_ S \_\_\_\_ G \_\_\_\_

2. Course History: Constants      Electives      Concurrents      Others

Grade X

Grade XI

Grade XII

3. Credits earned: Grade X \_\_\_\_\_ Grade XI \_\_\_\_\_ Grade XII \_\_\_\_\_

4. Age as of June 30, 1958    Years \_\_\_\_\_ Months \_\_\_\_\_

Birthday: Day \_\_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_



## SAMPLE 2

## INTERVIEW SCHEDULE: PRINCIPAL

1. By what means does this school identify gifted students? (Please check)
  - a. Intelligence tests? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', please name the tests:
  - b. Standardized achievement tests? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', please name the tests:
  - c. Teachers' judgments on the basis of observation? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', please explain briefly the situations in which observations are made by the teachers before they pass judgment:
  - d. School achievement as determined by teacher-made tests?  
Yes \_\_\_\_\_ No \_\_\_\_\_
  - e. Other means not mentioned above?
2. Are any courses available in this school which are restricted to students whose mental ability and/or achievement is above average? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', please list the courses:
3. During the history of this high school has there been any specific policy formulated by the administration and put into practice with the aim being to better enable the school to meet the needs of gifted students? Yes \_\_\_\_\_ No \_\_\_\_\_. If 'yes', please comment on the nature of the policy and indicate whether or not you think the aims were realized:
4. Does the administration of this school provide special assistance to the teachers of the gifted as they attempt to carry out their duties? Yes \_\_\_\_\_ No \_\_\_\_\_. (For example, the administration may limit the total number of classes carried by the teachers of the gifted; the administration may supply special facilities as aids to instruction; the administration may supply supervisory personnel to work with the teachers of the gifted, etc.) If 'yes', please comment on the nature of the special provisions:
5. Please list the scholarships, assistanceships, bursaries, etcetera that are available at this school for worthy students.
6. What awards, other than monetary, are available at this school for worthy students?
7. Does this school enrich the curriculum for gifted students? Yes \_\_\_\_\_ No \_\_\_\_\_  
"Enrichment is a special effort to challenge the abilities of gifted pupils



THEORY OF THE EARTH

(1) The earth is a sphere, and its surface is covered by water.

(2) The earth is composed of various layers, and the outermost layer is the crust.

(3) The crust is divided into two parts, the upper crust and the lower crust.

(4) The upper crust is composed of various rocks, and the lower crust is composed of various rocks.

(5) The lower crust is composed of various rocks, and the upper crust is composed of various rocks.

(6) The upper crust is composed of various rocks, and the lower crust is composed of various rocks.

(7) The lower crust is composed of various rocks, and the upper crust is composed of various rocks.

(8) The upper crust is composed of various rocks, and the lower crust is composed of various rocks.

(9) The lower crust is composed of various rocks, and the upper crust is composed of various rocks.

(10) The upper crust is composed of various rocks, and the lower crust is composed of various rocks.

(11) The lower crust is composed of various rocks, and the upper crust is composed of various rocks.

(12) The upper crust is composed of various rocks, and the lower crust is composed of various rocks.

(13) The lower crust is composed of various rocks, and the upper crust is composed of various rocks.

(14) The upper crust is composed of various rocks, and the lower crust is composed of various rocks.

in their experiences in and out of the classroom and consists in giving the gifted youth the opportunity to go more deeply into things, to range more widely than the average youth." (1)

If you answered 'yes' to question 7, please check off any of the following forms of enrichment practiced in this school, and comment briefly on the nature of such activities, citing examples where possible. Add any not included in this list but which are used at this school.

- a. guidance in general reading
- b. stimulation of hobbies and collections
- c. producing and acting in plays
- d. making excursions to places of interest
- e. providing contacts with community individuals who share the interests of the gifted
- f. providing special facilities for the gifted where they may work in their spare school time or after regular school hours if they so desire
- g. encouraging gifted students to carry extra courses
- h. allowing gifted students to act as laboratory assistants and/or librarians
- i. encouraging individual and 'small-group' research followed in some instances by seminar presentations of the findings (2)
- j. other means used at this school

8. Which of the following administrative devices are used by this school as it attempts to meet the needs of gifted students?

a. by retaining gifted students in regular (heterogeneous) classes?  
Yes \_\_\_\_\_ No \_\_\_\_\_ Comments?

b. by ability grouping - in special classes? Yes \_\_\_\_\_ No \_\_\_\_\_  
- in special courses? Yes \_\_\_\_\_ No \_\_\_\_\_  
- other means?  
- comments?

c. by accelerating the progress of gifted students through the conventional three year educational programme? Yes \_\_\_\_\_ No \_\_\_\_\_  
Acceleration may be practiced by offering courses considered to be extra to enable the accumulation of credits, or it may be practiced by allowing rapid mastery of single subjects (two years language in one, for example), or by giving college courses in the high school or credits for college courses. If acceleration is achieved by any of the above means at this school please underline. Add any other means not mentioned here.

Comments?

9. During the past year what 'in-service training' has been carried on which related directly to increasing the understanding of teachers about gifted

(1)

(2)

(3)

(4)

students? (For example, some in-service training activities may have involved the study of teaching techniques, the characteristics of the gifted, the nature of a desirable curriculum for the gifted.)

Please list the activities and comment on their nature:

10. Please name the supervisory personnel available for the teachers of this school to consult on problems they may have as a result of their attempts to teach the gifted.
11. During the past three years has there been a specific evaluation of the effectiveness of teachers in meeting the needs of the gifted students enrolled in this school? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', please comment on the results of the evaluation and mention who conducted it:
12. Are there any individuals or organizations (outside the school system) who are specifically called upon by the school to assist it in meeting the needs of the gifted students enrolled? Yes \_\_\_\_\_ No \_\_\_\_\_.  
If 'yes', please list them and comment on the nature of their contribution:



## SAMPLE 3

## GUIDANCE COORDINATOR INTERVIEW

1. What measuring devices are used by the guidance department at this school to appraise the learning and evaluate the growth of the gifted students enrolled? (Achievement tests, personality tests and inventories, vocational interest tests, intelligence tests, aptitude tests, etc.)

2. How often do you appraise such learning and growth?

a. According to a schedule? Yes \_\_\_\_\_ No \_\_\_\_\_

If 'yes', please attach a schedule if possible, or explain briefly:

b. As the need arises for individual students? Yes \_\_\_\_\_ No \_\_\_\_\_

If 'yes', please explain:

3. To whom are your records of individual students available? (Please check along the line across from the party to whom the records are or are not available)

completely	partially	not
available	available	available

The principal.....

The vice-principal.....

Department heads or coordinators..

Teachers.....

Pupils.....

Parents.....

Others (please name).....

4. Is this school offering any special guidance provisions for the gifted students enrolled? (i.e. something other than the regular guidance offered all the students) Yes \_\_\_\_\_ No \_\_\_\_\_

If 'yes', please explain the nature of the provisions:

5. During the current school year or with in the previous two years, has this guidance department made any study of the selected group of gifted grade XII students (actual research) ? Yes \_\_\_\_\_ No \_\_\_\_\_

If 'yes', please comment briefly on the nature of and results of the study, or inclose a copy of the results of the study.





## SAMPLE 4

## STUDENT INTERVIEW

1. Have you decided yet which life vocation you wish to follow? (e.g. lawyer, farmer, teacher, business executive, accountant, nurse, stenographer, etc.)  
Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', which occupation?
2. Under what circumstances did you make the choice in 1. above? (That is, what influences determined the decision? influences such as school courses, advice of relatives, teachers or friends, reading, close hand observation, etc.)
3. How many visits have you made to the guidance department this year?
4. Describe anything that may have been done by the guidance officials in this school that has made what you consider to be a real difference to you and your future plans.
5. At any time during your enrolment at this school has the guidance department helped you decide to take a course? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', name the course or courses:
6. At any time during your enrolment at this school has the guidance department helped you decide to not take a course? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', name the course or courses:
7. At any time during your enrolment at this school has the guidance department helped you decide to participate in an extracurricular activity?  
Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', name the activity or activities:
8. At any time during your enrolment at this school has the guidance department helped you decide to not participate in an extracurricular activity?  
Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', name the activity or activities:
9. What subjects have you liked most during your high school career? Why?
10. What studies have you liked least? Why?
11. About how many hours a week (outside of school hours) do you spend on school studies?
12. Name all the offices or honours you have held during the last three years.  
(Examples: class officer, club officer, actor in plays, scholarship prize)



or honour, member of band or orchestra, debating team, athletic team, school committee, school paper, etc.) (3)

13. If you had the responsibility of selecting your teachers, what are the three characteristics you would most want them to possess?
14. About how many times do you visit the school library in a week's time?
15. What type of books do you use in the library or take out from the library?
- a. reference books for assignments? Yes \_\_\_\_\_ No \_\_\_\_\_
- b. reference books just for the sake of satisfying your own interest?  
Yes \_\_\_\_\_ No \_\_\_\_\_
- c. fiction and non-fiction for your pleasure? Yes \_\_\_\_\_ No \_\_\_\_\_
- d. others? (please signify the type) \_\_\_\_\_
16. Do you feel the school library is adequate to meet your reading needs?  
(Please check along the line)

More than adequate	Adequate	Less than adequate
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17. a. During your enrolment at this school have you at any time undertaken an individual or a small group project in one of your subjects (chemistry, social studies, etc.) which was not an assignment for the whole class, but rather was something that you decided to do 'extra'? Yes \_\_\_\_\_ No \_\_\_\_\_
- If 'yes', what did you do?
- Did you receive help from any staff members? Yes \_\_\_\_\_ No \_\_\_\_\_
- If 'yes', what kind of help?
- What school facilities were made available to you to carry out your project ( e.g. laboratory, library, gymnasium, etc.)?
- If school facilities were made available when did you use them, in school hours, after hours, before school hours?
18. Liking for school (underline) (4)
- Very strong, fairly strong, slight liking, positive dislike
- If school has been disliked at any time, why?
19. Do you feel restricted by the school in attempts to follow any subject-matter or extracurricular interests you may have? Yes \_\_\_\_\_ No \_\_\_\_\_
- If 'yes', please explain:
20. Do you feel the school is overworking you in classwork and extracurricular activities? Yes \_\_\_\_\_ No \_\_\_\_\_



Do you feel the school is not working you hard enough in classwork and extracurricular activities? Yes \_\_\_\_\_ No \_\_\_\_\_

Please comment on your answers, if you wish to -

21. Name any community organizations to which you belong (e.g. Y, church groups, cadets, band, choir, art club, baseball team, hockey team, etc.):

About how long have you belonged to each?

Name any leadership positions you have held in any of the organizations you mention above:

22. To what community organizations do you belong because the school suggested that you should belong, or because the school made it possible for you to belong?



## SAMPLE 5

## TEACHER QUESTIONNAIRE

Number 1

Teacher's name \_\_\_\_\_

Without reference to any school records, but on the basis of your experience, name any grade twelve students, or students taking any grade twelve subjects whom you have been teaching this year, and whom you consider to be 'gifted'.

(note) A gifted student is defined for the purposes of this study as one who is believed to have high general intellectual endowment, whether he is currently using his creativeness or not.) (5)





## SAMPLE 6

## LETTER TO THE TEACHERS COVERING THE QUESTIONNAIRE (NUMBER 2)

To the Teachers,

The study I have undertaken is concerned with the education of gifted youth in the composite high schools of Alberta. The major problem involves an attempt to evaluate, in terms of so-called 'ideal criteria', the current programmes offered a selected group of gifted grade twelve students. Sources of information are teachers, students, school administrators, permanent record cards and the department of education. The criteria are supported by research findings from the literature and the ideas of such persons as Terman, Hollingworth, Witty and Havighurst and Laycock. They have to do with such things as the identification of the gifted, motivation, curricular enrichment, administrative devices for meeting the needs of the gifted, use of community resources, and supervisory leadership.

Gifted students are defined, for the purposes of this study, as those believed to have high general intellectual endowment, whether they are currently using their creativeness or not. The students selected for this study are those in the composite high schools who appear in 97, 98 and 99 percentiles (as measured by the Dominion IQ test) and who are in Grade XII this year.

I realize that you are being requested to give a sizable portion of your time to the answering of a number of questions. I trust you'll be willing to spend the necessary time and thought, for without your assistance the study will be impossible. Once it has been completed, I believe it will make a valuable contribution to the thinking done by teachers and administrators



concerning the education of gifted youth in secondary schools.

When the thesis is completed (by the end of August, I hope), summaries of the findings will be made available to you.

Your name is not required. The information you give will be treated with due respect.

Sincerely,

Ian Housego



## SAMPLE 7

## TEACHER QUESTIONNAIRE

## Number 2

1. a. Briefly indicate any calls you made on the guidance department of this school during the current school year in order to get help in understanding and teaching any of the selected group of Grade XII students:
- b. Are you satisfied that the guidance department of this school is adequately doing all that it might reasonably be expected to do in its work with the gifted group of students? (Please check)

More than adequate	Adequate	Less than adequate	Undecided
-----------------------	----------	-----------------------	-----------

Any comments?

2. Briefly describe the ideal conditions, as you visualize them, which would be most conducive to the stimulation, release, and development of the full potential of the gifted students attending this school.
3. What especially prevents you from doing all that you might wish to do for the gifted members of your classes?
4. What books or articles have you read on gifted children and youth and would recommend to other teachers?
5. "Enrichment is a teaching device. It can be used in special classes, homogeneous groupings, special seminars, or regular classes. Enrichment may be either in breadth or depth, or in both. By enrichment in depth is meant that the gifted youth covers the same range of topics as his slower classmates. He is encouraged, however, to delve more deeply into these topics, to read more widely regarding them, and to carry on 'research' activities to a greater degree than average students. Enrichment in breadth means that gifted youth are encouraged to explore a variety of topics or activities which are additional to those studied by the youth of average or dull ability." (5)
- a. What efforts have you made during the past school year to enrich the curriculum for the gifted students taking your subject? (Indicate the subject and briefly explain what you have tried to do, and also whether or not your efforts were successful). Below are a list of enrichment activities you may have used: (7)

1. Enrichment through guidance in general reading





2. Stimulation of hobbies and collections
3. Encouraging extracurricular activities in the school
4. Making excursions to places of interest
5. Making contacts with outstanding citizens of the community with interests similar to gifted class members
6. Encouraging the administration to provide special facilities for the gifted (laboratories, art room, music room, library facilities, etc.)
7. Encouraging gifted students to participate in community organizations
8. Encouraging individual research by gifted members of your classes
9. Organizing seminar projects for gifted class members
10. Planning more difficult assignments for the gifted
11. Encouraging creative experiences (e.g. creative writing, dramatics, etc.)
12. Organizing exhibitions of the products of enrichment activities
13. Using gifted students as assistants in laboratories, the library, etc.
14. Other enrichment activities you may have used which are not listed above

- b. Do you consider the school library is adequate to meet any calls which you might make upon it as you attempt to meet the needs of gifted students by means of projects, class assignments, extra reading, etc.? (Please check)

,	,	,	,
More than adequate	Adequate	Less than adequate	Undecided

Any comments?

- c. Please answer if you are a science teacher:  
Do you consider the scientific equipment in this school is adequate to meet any demands you might make upon it as you attempt to meet the needs of gifted students by means of projects, individual and class assignments, research of an advanced nature, etc.? (Please check)

,	,	,	,
More than adequate	Adequate	Less than adequate	Undecided

If you checked 'less than adequate', please name any facilities which you think the school should provide:

- d. Do you consider the extracurricular activities in this school to be adequate to meet the social, physical and intellectual needs of the gifted students enrolled? (Please check)

,	,	,	,
More than adequate	Adequate	Less than adequate	Undecided

If you checked 'more than adequate', which of the extracurricular activities would you recommend should be added to those already organized for the good



If you checked 'more than adequate' which of the extraaurricular activities do you consider should not be open to gifted students?

6. During the past three years have you been a member of any committee the purpose of which was to revise the high school curriculum to better meet the needs of high school students in general or gifted students in particular? Yes \_\_\_\_\_ No \_\_\_\_\_

If 'yes', please explain briefly:

7. During the past three years have you, on your own initiative, revised to any degree the material and/or methods of teaching your subject in order to better meet the needs of the gifted members of your classes? Yes \_\_\_\_\_ No \_\_\_\_\_  
If 'yes', please explain briefly:

8. If you answered 'yes' to question 7., did you receive any assistance from the administration or the supervisory staff of the school or school system? Yes \_\_\_\_\_ No \_\_\_\_\_

If 'yes', what was the nature of the assistance?

9. During the past three years what in-service training activities have gone on in this school or within the school system which have directly related to increasing your knowledge and understanding of gifted students and/or enabled you to more effectively teach gifted students? (Some in-service training activities may have been designed to introduce you to new techniques of teaching the gifted, to understand the nature of a desirable curriculum for the gifted, or the characteristics of the gifted)  
If you were involved in any such activities please comment briefly on the nature of them:

10. During the current school year has anyone visited your classroom while you were teaching any members of the selected group with the expressed purpose of evaluating your effectiveness as a teacher of the gifted? Yes \_\_\_\_\_  
No \_\_\_\_\_

11. If you answered 'yes' to question 10., was there a consultation between you and the one who carried out the evaluation, as a means of recognizing the work you were doing and/or help you to do better? Yes \_\_\_\_\_ No \_\_\_\_\_



## FOOTNOTES TO APPENDIX A

(1) S. R. Laycock, Gifted Children (Toronto: Copp Clark Publishing Company Limited, 1957), p. 75.

(2) Ibid., chap. vii.

(3) B. S. Burks, D. W. Jensen, L. M. Terman and others. The Promise of Youth, Genetic Studies of Genius, Volume III (Stanford, California: Stanford University Press, 1930), p. 492.

(4) Ibid., p. 73.

(5) S. R. Laycock, op. cit., p.10.

(6) Ibid., p. 75.

(7) Ibid., chap. vii.



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(1) The first part of the paper is devoted to the study of the properties of the function  $f(x)$  defined by the equation  $f(x) = \sum_{n=0}^{\infty} a_n x^n$ , where  $a_n = \frac{1}{n!}$ . It is shown that  $f(x)$  is an entire function and that  $f(x) = e^x$ . The proof of this is given in the following way: Let  $f(x) = \sum_{n=0}^{\infty} a_n x^n$  and  $g(x) = \sum_{n=0}^{\infty} b_n x^n$  be two power series. Then  $f(x) + g(x) = \sum_{n=0}^{\infty} (a_n + b_n) x^n$  and  $f(x)g(x) = \sum_{n=0}^{\infty} c_n x^n$ , where  $c_n = \sum_{k=0}^n a_k b_{n-k}$ . If  $f(x) = e^x$  and  $g(x) = e^x$ , then  $f(x) + g(x) = 2e^x$  and  $f(x)g(x) = e^{2x}$ . This shows that  $e^x$  is an entire function and that  $e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}$ .

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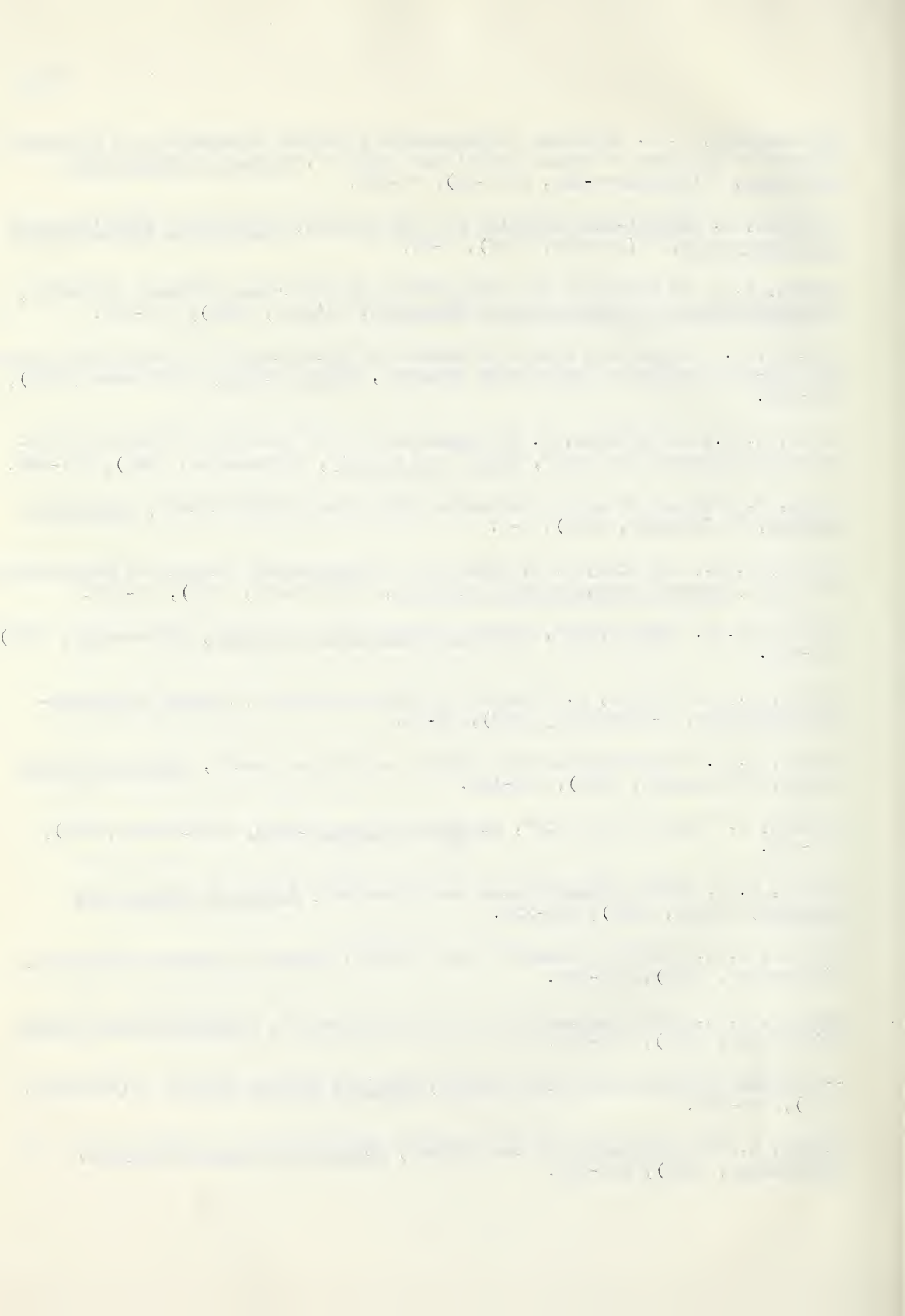
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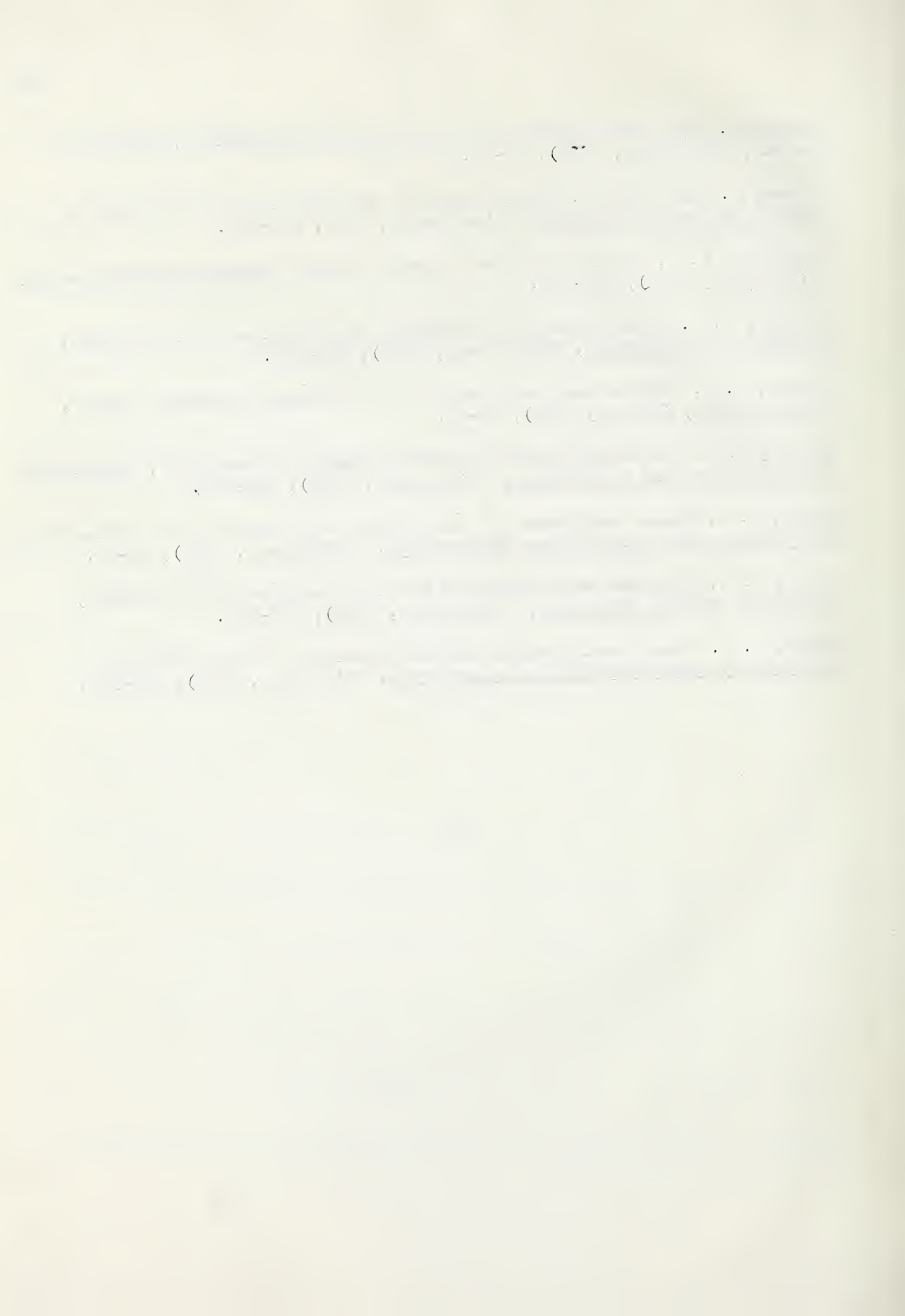
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